U.S. DEPARTMENT OF ENERGY

FY 2010

Laboratory Directed Research and Development at the DOE National Laboratories

REPORT TO CONGRESS

December 2010

United States Department of Energy
Washington, DC 20585

The images on the front cover represent science and technology at the DOE national laboratories produced under the LDRD Program that support the Department of Energy and Department of Homeland Security's major missions. The images, in order, include: an 1) ultrasonic macro-blade cutting device used for sampling and analyzing the building blocks of the solar system to determine the particles' makeup, 2) a modeling capability from quantum computers that illustrates the electron density in the electrostatic electron-confinement chamber; 3) porous wall hollow glass microspheres used as a solid-state storage medium for storage and release of tritium; 4) titania functionalized graphene sheets that significantly improve the performance of lithium ion batteries; and 5) a dual-use biochip that offers physicians the ability to quickly diagnose diseases and also gives counterterrorism officials a new tool to find the origin of a biological weapon.

Formally, this report responds to the Conference Report (H.R. Report No. 106-988) accompanying the Fiscal Year (FY) 2001 Energy and Water Development Appropriations Act, which requested the DOE Chief Financial Officer "develop and execute a financial accounting report of LDRD expenditures by laboratory and weapons production plant." It also responds to the National Defense Authorization Act for Fiscal Year 1997 (Public Law 104-201), which requires submission each year of "a report on the funds expended during the preceding fiscal year on [LDRD] activities […] to permit an assessment of the extent to which such activities support the national security mission of the Department of Energy." Further, this report addresses the requirement in the Conference Report (H.R. Report No. 107-258) accompanying the FY 2002 Energy and Water Development Appropriations Act, which requests the Secretary of Energy include in the annual report to Congress on LDRD expenditures "an affirmation that all LDRD activities derived from funds of other agencies have been conducted in a manner that support science and technology development that benefits the programs of the sponsoring agencies and is consistent with the Appropriations Acts that provided funds to those agencies."

For the purposes of this document, Laboratory Directed Research and Development refers to "research and development work of a creative and innovative nature which [...] is selected by the director of a laboratory for the purpose of maintaining the vitality of the laboratory in defense-related scientific disciplines" [National Defense Authorization Act for Fiscal Year (FY) 1991 (Public Law (P.L.) 101-510)].

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Secretarial Affirmation

On behalf of the Department of Energy, I am pleased to present the Fiscal Year 2010 Laboratory Directed Research and Development (LDRD) Report to Congress. The Department's national laboratories execute long-term national missions and develop unique scientific and technical capabilities beyond the scope of academic and industrial institutions. Further, the laboratories develop and sustain scientific and technical capabilities that the Federal Government deems critical and desires assured access. The LDRD Program provides the laboratories with the opportunity and flexibility to establish and maintain an environment that encourages and supports creativity and innovation, and contributes to their long-term viability. LDRD is indispensable to the Department because it enables the laboratories to position themselves to advance our national security mission and respond to our Nation's future research needs.

Based on the information and acknowledgments provided to the Department and its contractors by other Federal agencies that are funding LDRD activities in fiscal year 2010, I affirm that all LDRD activities derived from funds of other Federal agencies (1) have been conducted in a manner supporting scientific and technical development that benefits the programs of the sponsoring agencies, and (2) is consistent with the appropriations acts that provided funds to those agencies.

Steven Chu

Secretary of Energy
December 22, 2010

Introduction

The Atomic Energy Act (AEA) of 1954, as amended (42 U.S.C. 2011 et seq., in Section 31), directs the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) to ensure the continued conduct of research and development (R&D) and to assist in the acquisition of an ever-expanding body of theoretical and practical knowledge in the fields of energy, its production, uses, handling, and effects. This mission, initially the responsibility of the Atomic Energy Commission (AEC), then that of the Energy Research and Development Administration (ERDA) and subsequently DOE, has been and continues to be carried out to a significant extent in government-owned facilities.

The AEC recognized that, in order to maintain the laboratories' intellectual vitality, their ability to respond immediately to developments at the cutting edge of science and technology**,** and their ability to retain the best scientific, technological, and managerial talent, a certain amount of work must be left to the laboratories' discretion. Thus, from its inception, the AEC and its successor agencies made allowable certain amounts of research derived from the ideas of the national laboratory researchers themselves.

In 1985, and in response to the recommendations of prestigious national panels and commissions, the Department established the Exploratory Research and Development Program (ER&D) to formalize the practice of providing its national laboratories with the means in which to conduct laboratory initiated R&D.[1] Six years later, DOE renamed the program Laboratory Directed Research and Development (LDRD) and formally established it at the DOE national laboratories. Today, the LDRD Program at the DOE national laboratories and analogous programs at the Department's nuclear weapons production plants (i.e., Plant Directed Research and Development, or PDRD) and Nevada National Security Site (NNSS) (i.e., Site Directed Research and Development, or SDRD) are active components of DOE mission to promote scientific and technical (S&T) innovation that advances the economic, energy, and national security of the United States (U.S.).[2]

All LDRD activities conducted at the DOE national laboratories are governed by a standard DOE policy (DOE Order 413.2B, *Laboratory Directed Research and Development*), which provides guidance to ensure effective management and oversight of the LDRD Program, while at the same time supporting the laboratories' statutory authority to pursue innovative, self-selected projects in support of the DOE mission. DOE's LDRD policy is consistent with the Department's management practices for all R&D activities in that it includes annual planning and reporting requirements, as well as program and peer reviews to ensure the investments reflect highly innovative and the highest quality research projects. In addition, DOE concurs with each proposed LDRD project before a laboratory commences work on it to ensure the project complies with Departmental policy. The remainder of this report formally responds to the LDRD Program financial reporting requirements required by law (see Appendix 1 for the list).

[1] See, among others, the *Report of the White House Science Council*, Office of Science and Technology Policy, Executive Office of the President, Washington, DC, May 1983; and Guidelines, Energy Research Advisory Board, December 1985.
[2] PDRD programs at DOE's Kansas City, Y-12, Pantex, and Savannah River Plants are consistent with the statutory authorizations found in Section 310 of the FY 2001 Energy and Water Development Appropriations Act (P.L. 106-377) and Section 3156 of the FY 2001 Floyd D. Spence National Defense Authorization Act (P.L. 106-398). The NNSS's SDRD program is consistent with the statutory authorizations found in Section 310 of the FY 2002 Energy and Water Development Appropriations Act, 2002 (P.L. 107-66).

FY 2010 LDRD Financial Reporting

In accordance with Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8), the maximum funding level established for LDRD must not exceed eight percent of a laboratory's total operating and capital equipment budget, including non-DOE funded work, for the year. LDRD is a cost of doing business that is accumulated through a percentage of the overhead rate charged by a laboratory; this is based on the premise that LDRD is a cost for keeping the laboratories vibrant, cutting edge and creative in ideas and new fields, and thereby benefits all programs doing work at a healthy laboratory. LDRD is considered an allowable cost in accordance with the terms of the laboratory management and operating contracts and is identified in the laboratories' accounting systems. Table 1 includes the FY 2010 end-of-year information.

Table 1. FY 2010 Overall Laboratory Costs and LDRD Costs at DOE Laboratories

Laboratory	# of LDRD Projects	LDRD Certified Costs ($M)	Total LDRD Certified Cost Base ($M)[3]	LDRD as a % of Certified Cost Base
Argonne National Lab	124	28.5	629.3	4.53%
Brookhaven National Lab	51	11.3	485.9	2.33%
Idaho National Lab	108	28.6	1,059.8	2.70%
Lawrence Berkeley National Lab	99	20.6	686.6	3.00%
Lawrence Livermore National Lab	147	88.7	1,550.5	5.72%
Los Alamos National Lab	269	126.4	2,174.8	5.81%
National Renewable Energy Lab	44	7.3	299.3	2.44%
Oak Ridge National Lab	172	32.2	1,334.0	2.41%
Pacific Northwest National Lab	158	35.8	876.0	4.09%
Princeton Plasma Physics Lab	16	1.8	85.0	2.12%
Sandia National Labs	432	152.7	2,259.0	6.76%
Savannah River National Lab	32	4.0	132.8	3.01%
SLAC National Accelerator Lab	10	3.3	256.2	1.29%
Total	**1,662**	**541.2**	**11,829.2**	**4.58%**

[3] Recovery Act costs have been excluded from the total certified LDRD Cost Base.

The total FY 2010 LDRD program cost at the national laboratories was $541 million, which represents approximately 4.6 percent of total cost base at these laboratories. In analyzing the LDRD spending trends since FY 2007 across all the national laboratories, there has been modest growth to the LDRD cost base, while the LDRD spending has remained relatively flat when adjusted for inflation. The overall LDRD percentage spent has decreased each year since FY 2007 and is well below the maximum 8% during this period.

An analysis of the total FY 2010 LDRD program cost of $541 million was conducted as it relates to funding received from defense and non-defense sources (including DOE and Work for Others sponsors) and the DHS, as well as of the applications and contributions to national defense, non-defense, and DHS missions that are expected to accrue from each LDRD project. As a result of this review, DOE has determined that, of the total $541 million spent on LDRD at the national laboratories in FY 2010, approximately $337 million was provided by defense customers, approximately $184 million was provided by non-defense customers, and approximately $20 million was provided by the DHS. Furthermore, under the FY 2010 LDRD program, $380 million supported projects that are expected to benefit the defense and national security mission areas, $460 million supported projects that are expected to benefit nondefense customer mission areas, and $190 million supported projects that are expected to benefit DHS programs. As the numbers indicate, this assessment and expectation is based on the premise that many of the FY 2010 LDRD projects will ultimately benefit and apply to more than one national mission area.

LDRD and the Work for Others Program

The Work for Others (WFO) program creates opportunities to leverage non-DOE Federal and non-Federal resources to accelerate scientific discovery and deploy solutions to the dual benefit of DOE and the sponsoring entity. WFO plays an important role in the laboratories' efforts to develop, strengthen, and sustain unique S&T capabilities deemed critical by the Government and, in many cases, represents a coordinated set of activities that seek to address large and complex national needs. This leveraging of DOE and WFO activities enables the laboratories to deliver national solutions in a cost-effective manner.

Congress provided language in the Conference Report accompanying the Energy and Water Development Appropriations Act, 2002, that requested the Department notify other Federal agencies that a portion of WFO programs will be used to fund LDRD projects. In addition, with the creation of the Department of Homeland Security in the FY 2002 Homeland Security Act, Congress enacted analogous requirements that LDRD funding associated with DHS programs be used to benefit DHS missions. In response to the FY 2002 Conference Report, the Secretary issued guidance requiring all LDRD laboratories to notify other Federal agencies of LDRD charges prior to funding work at the laboratories. Specifically, each new and/or revised WFO proposal DOE provides to a Federal agency must indicate the amount of LDRD charges that will be collected on the project. Furthermore, the proposal notifies the sponsor that, by providing funding, the agency is acknowledging that LDRD activities are beneficial to its organization and consistent with the Appropriation Acts that provide funding to it. Subsequently, each WFO funding acceptance document also includes the LDRD charge estimate acknowledgement.

In February of 2003, the Secretary of Energy and the Secretary of Homeland Security entered into a Memorandum of Agreement to implement key provisions of the Homeland Security Act. In addition, the Deputy Secretary of Energy issued DOE Order 484.1 on *Reimbursable Work for the Department of Homeland Security.* The purpose of this latter document was to provide information on the process by which the DHS may place orders for reimbursable work activities to be performed at the DOE laboratories. Within that Order, there are provisions for notification of LDRD charges in the cost proposal as well as requirements for acknowledgements regarding the benefits of LDRD prior to final approval.

In December of 2003, DOE's Acting Chief Financial Officer provided other Federal agency Chief Financial Officers who are customers and sponsors of work at the Department's laboratories with applicable guidance and policy documents to explain the Department's processes. Collectively, the implementation and execution of these policies provides the basis for the Secretary's affirmation that the LDRD Program is managed in accordance with the Congressional requirements cited above.

FY 2010 PDRD and SDRD Programs – Financial Reporting

Plant Directed Research and Development- Fiscal Year Expenditures

Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8) enabled the Secretary of Energy to authorize an amount not to exceed four percent for PDRD. Table 2 shows FY 2010 PDRD expenditures by site.

Table 2. FY 2010 PDRD Expenditures

Plant	# of PDRD Projects	PDRD Certified Costs ($M)	Total Plant Certified Cost Base ($M)	PDRD as a % of Certified Cost Base
Kansas City	46	7.0	546.0	1.29%
Pantex	22	1.9	677.5	.28%
Savannah River	10	1.1	142.1	.76%
Y-12	80	17.6	679.4	2.59%
Total	**158**	**27.6**	**2,045.0**	**1.35%**

Site Directed Research and Development – Fiscal Year Expenditures

Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8) enabled the Secretary of Energy to authorize an amount not to exceed four percent for SDRD. Table 3 shows FY 2010 SDRD program expenditures.

Table 3. FY 2010 SDRD Expenditures

Site	# of SDRD Projects	SDRD Certified Costs ($M)	Total Site Certified Cost Base ($M)	SDRD as a % of Certified Cost Base
Nevada National Security Site	43	6.2	364.6	1.70%

Scientific Productivity and Performance

LDRD is the principal mechanism through which the Department's national laboratories can support the formulation of new theories, hypotheses, and approaches, build new and enhance existing S&T capabilities, and identify and develop technology applications with the potential to advance the DOE mission. Over the years, LDRD Programs and projects have realized major science and technology breakthroughs that have been reported widely in the scientific community. In addition, they have provided the laboratories with the opportunity to acquire foundational tools—to include S&T capabilities, as well as people—necessary to ensure their long-term viability. Summarized below are examples of key performance results of the LDRD Program for the last several fiscal years.

Workforce Development

A principal goal of the LDRD Program is to develop a world-class scientific, technical, and engineering workforce capable of responding to the future needs of the Nation. The LDRD Program, over time, has proven itself to be instrumental in the laboratories' ability to attract promising young scientists and engineers, thus providing the basis for continually refreshing the laboratory research staff, as well as for the education and training of the next generation of scientists. This includes support for both undergraduate and graduate students working on LDRD projects, technical staff retention associated with opportunities to retain and hone scientific skills via LDRD, and a range of university collaborations stimulated via LDRD projects. Furthermore, the LDRD Program plays a central role in attracting early-career post-doctoral researchers to the laboratories, as shown in Table 3 below. Post-doctoral appointments offer the single largest source of new scientific and engineering talent for the DOE laboratories and are therefore essential to maintaining their institutional vitality.

Table 4. Post-Doctoral Researchers Supported by LDRD at the DOE Laboratories in FY 2010

	Total Postdoctoral Count		
	Total # Postdoctoral Researchers at the National Laboratories	**Total # of Postdoctoral Researchers Supported by LDRD Funding[4]**	**% of Postdoctoral Researchers Supported by LDRD Funding**
Total # in FY 2010	3,143	890	28.3%

Publications

Publication in the open literature is an important component of any research and development program, especially those that involve the more fundamental scientific studies. Because these reports must first pass through expert reviews by peers in the relevant fields, they are demonstrative of the scientific quality of the knowledge produced through R&D.[5] The table below provides aggregate numbers of publications derived from LDRD activities at the DOE laboratories for fiscal years 2007 through 2009. These statistics demonstrate that LDRD is producing a high volume of outstanding science in areas for which the government desires future access.

Table 5. Cumulative Number of Peer-Reviewed Publications Derived from LDRD Projects in Fiscal Years 2007, 2008, and 2009

	Total Publication Count		
Fiscal Year	**2007**	**2008**	**2009**
Total # Peer Reviewed Publications	1,871	1,973	1,911

Intellectual Property

In 1989, the National Competitiveness Technology Transfer Act (P.L. 99-502) established technology transfer as a mission of Federal R&D agencies, including the DOE. Since then, DOE has encouraged its national laboratories to find ways to bring the knowledge, intellectual property, facilities, and capabilities they have developed to the market place in order to meet public and private needs.

[4] The number of postdoctoral researchers supported by LDRD in FY 2010 includes postdoctoral researchers at the DOE/NNSA laboratories that spent 10% or more of their time at a laboratory working on LDRD during the fiscal year.
[5] There is no standard value for publications across technical fields (e.g., chemists publish numerous short papers, mathematicians publish less frequently but more in-depth, and geologists publish accounts of field work).

Over time, the Department has found that LDRD Programs and projects are a productive component in its ability to advance its technology transfer mission. One example of LDRD's productivity is the number of invention disclosures and patents—a useful indicator in measuring technological strength and innovation—that stem from LDRD projects. The table below illustrates the distribution of patents and invention disclosures for fiscal years 2007-2009.

Table 6. Cumulative Number of Patents Filed/Granted and Invention Disclosures Derived from LDRD Projects in Fiscal Years 2007, 2008, and 2009

	Total Intellectual Property Count		
Fiscal Year	**2007**	**2008**	**2009**
Total # Patents	151	130	135
Total # Invention Disclosures	429	348	349

Appendix 1. Statutory and Report language Related to LDRD

Section 308 of Division C of the Omnibus Appropriations Act, 2009 (Public Law 111-8). LABORATORY DIRECTED RESEARCH AND DEVELOPMENT. Of the funds made available by the Department of Energy for activities at government-owned, contractor-operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory directed research and development: *Provided,* That the Secretary may also authorize a specific amount not to exceed 4 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site directed research and development: *Provided further,* That notwithstanding Department of Energy order 413.2A, dated January 8, 2001, beginning in fiscal year 2006 and thereafter, all DOE laboratories may be eligible for laboratory directed research and development funding.

Section 309 of Division C of the Consolidated Appropriations Act, 2008 (Public Law 110-161). LABORATORY DIRECTED RESEARCH AND DEVELOPMENT. Of the funds made available by the Department of Energy for activities at government-owned, contractor-operator operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory-directed research and development: *Provided,* That the Secretary may also authorize a specific amount not to exceed 4 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site-directed research and development: *Provided further,* That notwithstanding Department of Energy order 413.2A, dated January 8, 2001, beginning in fiscal year 2006 and thereafter, all DOE laboratories may be eligible for laboratory directed research and development funding.

109th Congress - House of Representatives Conference Report 109-275 (2006). "The conferees are concerned with the level of overhead charges applied to programs funded in this bill and urge the Department to continue to work to minimize the overhead burden on all program activities. In order to ensure an equitable allocation of overhead costs the Secretary should apply overhead charges to LDRD activities consistent with cost accounting practices applied to program activities that are direct funded. The conference agreement increases the allowable percentage for LDRD, PDRD and SDRD activities to allow this accounting change without harming the underlying discretionary research activities. The change in accounting practices should be implemented with no net reduction in LDRD levels below 6 percent of the funds provided by the Department of Energy to such labs for national security activities and 2 percent for PDRD and SDRD activities at the appropriate plants and sites. Within 90 days after the date of enactment of this Act, the Secretary of Energy shall submit a report to the Committees on Appropriations detailing how the accounting change will be implemented without impacting the basic research and the change shall be implemented within 180 days of enactment."

Section 311 of the Energy and Water Development Appropriations Act, 2006 (Public Law 109-103). "Of the funds made available by the Department of Energy for activities at government-owned, contractor-operator operated laboratories funded in this Act or subsequent Energy and Water Development Appropriations Acts, the Secretary may authorize a specific amount, not to exceed 8 percent of such funds, to be used by such laboratories for laboratory-directed research and development: *Provided,* That the Secretary may also authorize a specific amount not to exceed 3 percent of such funds, to be used by the plant manager of a covered nuclear weapons production plant or the manager of the Nevada Site Office for plant or site-directed research and development: *Provided further,* That notwithstanding Department of Energy order 413.2A, dated January 8, 2001, beginning in fiscal year 2006 and thereafter, all DOE laboratories may be eligible for laboratory directed research and development funding."

108th Congress - House of Representatives 108-212 (2004). "The Committee recognizes the value of conducting discretionary research at DOE's national laboratories. Such research provides valuable benefits to the Department and to other Federal agencies, and is crucial to attracting and retaining scientific talent at the laboratories. However, the Committee continues to have concerns about the financial execution of this program. One concern centers on the manner in which DOE levies the LDRD ''tax'' on all DOE and Work for Other programs, and then accumulates the funds into an overhead pool. This Committee typically deals with defense and non-defense allocations within the Energy and Water Development bill, and the line between those two allocations is not easily crossed. Under LDRD, however, the laboratory directors are able to pool defense and non-defense appropriations at will. The only obvious solution to this concern is to require DOE to establish and track separate LDRD accounts for defense and non-defense funding sources, and the Committee is not yet ready to direct that change.

The other principal concern deals with the application of LDRD to work being performed for other agencies (Work for Others). The conference report accompanying the Energy and Water Development Appropriations Act, 2002 (P.L. 107–66) directed the Secretary to ''include in the annual report to Congress on LDRD activities an affirmation that all LDRD activities derived from funds of other agencies have been conducted in a manner that support science and technology development that benefits the programs of the sponsoring agencies and is consistent with the Appropriations Acts that provided funds to those agencies.'' The Department has implemented this guidance by including the following language into its standard project proposal and funding acceptance documents that it requires the funding WFO agencies to sign: ''The Department of Energy believes that LDRD efforts provide opportunities in research that are instrumental in maintaining cutting edge science capabilities that benefit all of the customers at the laboratory. The Department will conclude that by providing funds to DOE to perform work, you acknowledge that such activities are beneficial to your organization and consistent with appropriations acts that provide funds to you.'' This is too facile a solution for the Department. According to a review conducted by this Committee's investigative staff, only a little more than half of the WFO customers indicated they could reliably certify that DOE's LDRD activities are consistent with the funding agencies' appropriations acts. Nevertheless, most agencies sign the required certification letter to DOE because they see no real alternative. The Committee fully expects that there are terms and conditions attached to the appropriations acts for these other agencies that are being ignored through this so-called ''certification'' process for LDRD work."

The Committee is considering changing the arrangement by which LDRD activities are funded to eliminate these concerns. The results of an ongoing General Accounting Office review will help to inform the Committee's choice. The Committee is receptive to streamlining the annual LDRD report to Congress, which is undoubtedly a significant burden for the Department to prepare and is of little value to this Committee in resolving the concerns identified above. The Department should work with Committee staff to develop a simpler and more useful LDRD report."

107th Congress - House of Representatives Conference Report 107-258 (2002). "The conference agreement does not include bill language proposed by either the House or the Senate regarding the Laboratory Directed Research and Development (LDRD) program. The conferees recognize the benefits of LDRD and expect LDRD activities to continue at previously authorized levels. However, when accepting funds from another Federal agency that will be used for LDRD activities, the Department of Energy shall notify that agency in writing how much will be used for LDRD activities. In addition, the conferees direct the Secretary of Energy to include in the annual report to Congress on all LDRD activities an affirmation that all LDRD activities derived from funds of other agencies have been conducted in a manner that supports science and technology development that benefits the programs of the sponsoring agencies and is consistent with the Appropriations Acts that provided funds to those agencies."

106th Congress - House of Representatives Conference Report 106-988 (2001). "The conference agreement includes an allowance of six percent for the laboratory directed research and development (LDRD) program and two percent for nuclear weapons production plants. Travel costs for LDRD are exempt from the contractor travel ceiling. The conferees direct the Department's Chief Financial Officer to develop and execute a financial accounting report of LDRD expenditures by laboratory and weapons production plant. This report due to the House and Senate Committees on Appropriations by December 31, 2000, and each year thereafter, should provide costs by personnel salaries, equipment, and travel.[6] The Department should work with the Committees on the specific information to be included in the report."

Section 3136(b) (1) of the National Defense Authorization Act for Fiscal Year 1997 (Public Law 104-201). "The Secretary of Energy shall annually submit to the congressional defense committees a report on the funds expended during the preceding fiscal year on activities under the Department of Energy Laboratory Directed Research and Development Program. The purpose of the report is to permit an assessment of the extent to which such activities support the national security mission of the Department of Energy."

[6]The offer to streamline the LDRD report resulted in the Department and Hill contacts agreeing not to require costs be provided by personnel salaries, equipment and travel.

Appendix 2. Listing of FY 2010 LDRD, PDRD & SDRD Projects

Project	Site name	Project Desc	FY2010 Cost
P/ANL2008-003	Argonne National Lab	Hybrid Block Copolymer-Nanocrystal Material for Efficient Photovoltaics	116,000
P/ANL2008-008	Argonne National Lab	Automated Theoretical Chemical Kinetics	162,000
P/ANL2008-020	Argonne National Lab	A Cell-Free Approach Towards Membrane Protein Production	157,600
P/ANL2008-026	Argonne National Lab	The Use of the Hedvall Effect to Control Catalytic Properties of Sub-Nanometer Size Magnetic Clusters	161,500
P/ANL2008-035	Argonne National Lab	Rapid XRF Elemental Imaging for High-Throughput Identification of Metal-binding Proteins Critical to Life, Disease and Bioremediation	228,400
P/ANL2008-036	Argonne National Lab	Systematic Analysis of the Role of Zinc in Stem Cell Plasticity and Pluripotency	233,000
P/ANL2008-070	Argonne National Lab	Complex Dynamic Behavior Investigated with Real-Time X-Ray Photon Correlation Spectroscopy	69,000
P/ANL2008-090	Argonne National Lab	Selective, Efficient C-H Bond Activation of Alkanes by High Surface Area, Size Selected Noble Metal Clusters	154,000
P/ANL2008-118	Argonne National Lab	Innovations in Advanced Simulation and Experimental Validation for Nuclear Energy Applications	560,000
P/ANL2008-119	Argonne National Lab	Risk-Based Decision System toward Risk Excellence	81,500
P/ANL2008-121	Argonne National Lab	Characterization of Ignition, Combustion, and Emissions for Advanced Engines and Fuels	458,300
P/ANL2008-122	Argonne National Lab	Plasmonics-Based Methods for Fast, Selective Chemical Biological, and Explosives Detection	64,400
P/ANL2008-124	Argonne National Lab	Stabilization of Subsurface Contaminants through Augmentation of Natural Biological and Geochemical Processes	222,300
P/ANL2008-128	Argonne National Lab	Wide-Angle X-Ray Scattering as a Probe of Protein Structure, Dynamics and Function	88,100
P/ANL2008-130	Argonne National Lab	Study of the Fundamental Properties of Buoyantly-Driven Turbulent Nuclear Burning in the Context of Type Ia Supernovae	105,500
P/ANL2008-135	Argonne National Lab	Integrating Radiatively Important Aerosols into a New ANL Socioeconomic/Gloval Change Modeling Framework	79,200
P/ANL2008-138	Argonne National Lab	A Global Modeling Initiative for National Security Event Dynamics	88,900
P/ANL2008-140	Argonne National Lab	Microbial Basis for Soil-Inorganic Carbon Sequestation	264,600
P/ANL2008-141	Argonne National Lab	Development of the Emittance Exchange Technique for Improved Accelerator Facility Performance	197,100
P/ANL2008-142	Argonne National Lab	Exascale Agent-Based Modeling System	197,500
P/ANL2008-147	Argonne National Lab	Nuclear Astrophysics	229,100
P/ANL2008-150	Argonne National Lab	Advanced Simulation of Separations	303,300
P/ANL2008-152	Argonne National Lab	Design and Fabrication of a Model HOM-Suppressed High Beam Power CW Superconducting RF Structure and a High Performance Cryomodule for Light Source Energy Recovery Linacs	88,200
P/ANL2008-154	Argonne National Lab	Exascale Hardware Designs	552,600
P/ANL2008-156	Argonne National Lab	An X-Ray Free-Electron Laser Oscillator in an Energy Recovery Linac	348,600
P/ANL2008-157	Argonne National Lab	Science and Technology for Development of High-Sensitivity Biosensors	98,500
P/ANL2008-159	Argonne National Lab	Very High Energy Gamma-Rays: Present and Future	405,000
P/ANL2008-160	Argonne National Lab	End-to-End Biofuels Analysis: Building Capability in HPC Socio-Economic-Environmental Modeling	568,100
P/ANL2008-161	Argonne National Lab	Ultrafast X-Ray Tracking of Laser-Controlled Molecular Motions	288,700

Project	Site name	Project Desc	FY2010 Cost
P/ANL2008-166	Argonne National Lab	Mapping Protein Binding Domain and Small Molecule Interactions	89,300
P/ANL2008-171	Argonne National Lab	Coherent Diffraction Imaging of Nonperiodic Materials	442,700
P/ANL2008-177	Argonne National Lab	High Brightness CW Injector Technology and Design Studies for the Energy Recovery Linac	174,300
P/ANL2008-179	Argonne National Lab	Software Infrastructure to Enable Exascale Computational Science	576,800
P/ANL2008-188	Argonne National Lab	Solar and Astrophysical MHD	182,600
P/ANL2008-190	Argonne National Lab	Feasibility Studies and Pre-Conceptual Design of Continuous Wave (CW) Superconducting RF Deflecting Cavities for the Generation of Short X-ray Pulses at the Advanced Photon Source	1,037,300
P/ANL2008-191	Argonne National Lab	Inducement of Targeted Organ-Protective Cooling Using Ice Slurry Coolants	152,000
P/ANL2008-192	Argonne National Lab	Smart polymers as molecular therapeutics and sensing agents	122,600
P/ANL2008-193	Argonne National Lab	X-ray Studies of Catalysis	381,000
P/ANL2008-195	Argonne National Lab	NEMS Based Nano-sensors for Basic Science Research	191,900
P/ANL2009-017	Argonne National Lab	Rapid Elemental and Isotopic Analysis of Trace Actinides and Fission Products in Fused Materials Using Advanced Extraction Methods and Resonant Ionization Mass Spectrometry (RIMS)	69,800
P/ANL2009-028	Argonne National Lab	Tagging & Monitoring Sealed Radiological Sources	163,300
P/ANL2009-035	Argonne National Lab	Explosive Nucleosynthesis of Heavy Elements	267,000
P/ANL2009-037	Argonne National Lab	The Development of Neutron Skins	128,400
P/ANL2009-047	Argonne National Lab	Novel Computing Methodologies for the Simulation of Complex Molecular Systems	196,700
P/ANL2009-050	Argonne National Lab	Catalyst Station at APS Beamline 9-BM	349,800
P/ANL2009-059	Argonne National Lab	Photoacoustic Technique for Remote Detection of Special Nuclear Materials	178,600
P/ANL2009-068	Argonne National Lab	Coherent Diffraction Imaging of Complex Polymeric Networks	152,100
P/ANL2009-070	Argonne National Lab	Characterization of Proteins from Anaeromyxobacter Dehalogenans, A Newly Identified Bacterium of Metabolic and Respiratory Versatility Important for Bioremediation	204,000
P/ANL2009-071	Argonne National Lab	Large Scale Beam Dynamics Optimization for More Efficient Operation of Large User Facilities	146,900
P/ANL2009-076	Argonne National Lab	Photocathodes Development for Accelerator R&D	165,300
P/ANL2009-080	Argonne National Lab	Improving Charged Particle Optical Device Designs: From Realistic 3D Field Maps to Transfer Maps	177,600
P/ANL2009-083	Argonne National Lab	Local Probes of Naovel Electronic States at Complex Oxide Interfaces	164,700
P/ANL2009-085	Argonne National Lab	Concept of Ultra-low Emittance Injector for Future X-Ray FEL Oscillator	355,900
P/ANL2009-097	Argonne National Lab	Integrated Biofuel/Engine Design	618,400
P/ANL2009-111	Argonne National Lab	Three-Dimensional Metamaterials with Negative Refractive Index	127,900
P/ANL2009-115	Argonne National Lab	Advanced Cathode Materials for high Performance Lithium Ion Batteries	296,800
P/ANL2009-117	Argonne National Lab	Fusion Cell Nucleus	102,900
P/ANL2009-138	Argonne National Lab	Ultra-Sensitive Protein Biomarker Screening Assay for Early Stage Disease Diagnosis	181,100
P/ANL2009-146	Argonne National Lab	Laboratory Simulations of Plasma Conditions Near Active Galactic Nuclei and Black Holes	113,700
P/ANL2009-155	Argonne National Lab	New Framework for Electromagnetic Simulations on Exascale Supercomputers	198,800
P/ANL2009-156	Argonne National Lab	Metagenomics-enabled Discovery of Protein Function	151,000
P/ANL2009-158	Argonne National Lab	Advances in 2 Kelvin Superconducting Cavitites for Future Accelerators	261,800

Project	Site name	Project Desc	FY2010 Cost
P/ANL2009-171	Argonne National Lab	Combinatorial Deletions to Produce a Minimal Strain of Bacillus Subtilis	222,500
P/ANL2009-177	Argonne National Lab	Recovery of Full-length Genes for Expression of Proteins from Metagenomic Sequence Data	106,900
P/ANL2009-180	Argonne National Lab	Advancing the Frontiers of Computational Design of Materials	277,400
P/ANL2009-186	Argonne National Lab	Characterization of Microbial Community Dynamics	287,000
P/ANL2009-190	Argonne National Lab	Single Photon Receiver Using Abrikosov Vortices	169,300
P/ANL2009-204	Argonne National Lab	Engineering Nanostructures Atom by Atom for Optical Activitiy and Quantum Coherence	136,400
P/ANL2009-209	Argonne National Lab	Physics of the Superinsulating State	247,500
P/ANL2009-212	Argonne National Lab	Development of a Novel Instrument for Argon-39 Analysis	167,500
P/ANL2009-214	Argonne National Lab	Materials Theory	109,400
P/ANL2009-226	Argonne National Lab	A High-Performance Computational Framework for Structure Determination at Large Scale Facilities	252,200
P/ANL2010-003	Argonne National Lab	Magneto-Vibrational Energy Conversion at the Nanoscale	148,000
P/ANL2010-010	Argonne National Lab	Laser Manipulation of Nuclear Spin Embedded in Nobel-Gas Ice	180,800
P/ANL2010-029	Argonne National Lab	Single Quantum Flux Mangnetometer	160,900
P/ANL2010-042	Argonne National Lab	Emerging Technologies for Scientific Databases	169,200
P/ANL2010-043	Argonne National Lab	Low Mass Optical Read-out for High Data Bandwidth Systems	200,100
P/ANL2010-044	Argonne National Lab	Novel Power System Operations Methods for Wind-powered Plug-in Hybrid Electric Vehicles	299,300
P/ANL2010-047	Argonne National Lab	Optimization of Luminescent Solar Concentrators	522,500
P/ANL2010-049	Argonne National Lab	Compact Solid-state Sources of Coherent THz-radiation	155,900
P/ANL2010-050	Argonne National Lab	Highly Efficient SERS-active Substrate with Designer Hot-spots and Multiple-stage Light Amplification	173,500
P/ANL2010-063	Argonne National Lab	Tacitile MEMS-based Sensor	132,500
P/ANL2010-073	Argonne National Lab	Polymerized Ionic Liquid Nanostructures for Biocatalytic Production	159,800
P/ANL2010-074	Argonne National Lab	Combined Approaches Towards a Hierarchical Understanding of Battery Materials	177,100
P/ANL2010-093	Argonne National Lab	Molecular Characterization of Spore Coat Proteins	160,000
P/ANL2010-108	Argonne National Lab	Multi-user Virtual Reality Environments for Emergency Response Planning and Training	98,500
P/ANL2010-110	Argonne National Lab	Dual-polarization Bolometric Focal Plane Detector for Inflation Era High Energy Physics	344,600
P/ANL2010-114	Argonne National Lab	Can We Raise the Q of Superconducting RF Accelerating Structures?	69,600
P/ANL2010-117	Argonne National Lab	Development of Picosecond X-ray Pulses at the APS using MEMS-based X-ray Optics	170,300
P/ANL2010-119	Argonne National Lab	Development of a High Throughput Approach to Soil Physical and Chemical Characterization in Tandem with Soil Metagenome Analysis	133,500
P/ANL2010-129	Argonne National Lab	Layered Oxides for Thermoelectric Energy Conversion	129,500
P/ANL2010-131	Argonne National Lab	Accelerating the MG-RAST Metagenomics Pipeline	702,100
P/ANL2010-137	Argonne National Lab	Novel Bifunctional Low-Temperature Catalysts at the Sub-nanometer Scale	157,800
P/ANL2010-138	Argonne National Lab	Trapped Field Magnets: A Paradigm Shift for Applications of High-field Magnets at a Synchrotron	142,300
P/ANL2010-139	Argonne National Lab	High-throughput Reconstruction of Metabolic Models for Organisms with Applications in Energy, Bioremediation, and Carbon Sequestration	222,100

Project	Site name	Project Desc	FY2010 Cost
P/ANL2010-150	Argonne National Lab	Next Gen Sequencing Core: Expanding the Number of Environments Reachable with Metagenome-directed DNA Sequencing	452,600
P/ANL2010-151	Argonne National Lab	Next Gen Sequencing Core: Increased Resolution Metagenomics	450,800
P/ANL2010-156	Argonne National Lab	Study of Superconducting Films by Atomic Layer Deposition	140,200
P/ANL2010-158	Argonne National Lab	Converting CO2 to Fuel through Functionalized MOFs	179,100
P/ANL2010-161	Argonne National Lab	The Biochemistry of Plant-fungal Symbiotic Relationships	207,400
P/ANL2010-167	Argonne National Lab	Probing Catalytic Transient Intermediate in Ultrafast Time Domain	199,500
P/ANL2010-175	Argonne National Lab	Detection of Low Copy Number of Pathogenic Microbes by Litmus Strip	292,200
P/ANL2010-181	Argonne National Lab	Development of High Power Targets for Isotope Production with Low Energy Beams	89,000
P/ANL2010-183	Argonne National Lab	X-ray Nanoimaging for Life Sciences	269,800
P/ANL2010-184	Argonne National Lab	Homogeneous Catalysis of Water Oxidation for Photochemical Energy Storage	207,900
P/ANL2010-185	Argonne National Lab	Beyond Li-ion Battery Technology for Energy Storage	1,047,500
P/ANL2010-187	Argonne National Lab	Correlated Electronic Structure Simulations of Materials: Advanced Algorithms for BlueGene/P and Q	139,100
P/ANL2010-188	Argonne National Lab	Nanoscale Architectures for Energy Storage	506,500
P/ANL2010-189	Argonne National Lab	Materials with Square Nets at the Metal/Semiconductor Boundary for Exploring Superconductivity and Other Correlated Electron Phenomena	248,300
P/ANL2010-190	Argonne National Lab	Investigaton of Novel Relativistic Quantum States in Iridates	118,400
P/ANL2010-191	Argonne National Lab	Process Engineering Research for Scalable Energy Storage Materials	715,100
P/ANL2010-192	Argonne National Lab	Microscopic Building Blocks of a Better Lithium-ion Battery	107,000
P/ANL2010-193	Argonne National Lab	Real-life Imaging: Before and After the Microscope	542,500
P/ANL2010-194	Argonne National Lab	Acceleration of Cloud Microphysical Retrievals for Climate Models	32,700
P/ANL2010-195	Argonne National Lab	Simultaneous Ecological Assessment and Characterization of Novel Proteins from a Soil Microbial Community	83,400
P/ANL2010-196	Argonne National Lab	Atomistically-Informed Mesoscale Simulation of Gradient Nuclear-Fuel Microstructure	128,900
P/ANL2010-197	Argonne National Lab	Controlled Heterogeneity of Materials for Energy Applications	126,400
P/ANL2010-198	Argonne National Lab	Molecular and Fluidic Transport in Nanostructured Soft Materials and Composites	169,900
P/ANL2010-199	Argonne National Lab	Open GATS: An Open Unified Framewor for Global Address and Task Space Computing in the Exascale Era	99,400
P/ANL2010-200	Argonne National Lab	Studying Oil Plumes with NEK5000 Code	106,000
P/ANL2010-201	Argonne National Lab	Near-Term Spent Nuclear Fuel Disposal Using Accelerator Drive System	193,800
P/ANL2010-202	Argonne National Lab	The Rational Synthesis of Kinetically Stabilized, Higher Order Inorganic Materials for Catalysis	26,000
P/ANL2010-203	Argonne National Lab	Non-aqueous Flow Battery for Stationary Energy Storage	62,000
P/ANL2010-204	Argonne National Lab	Spin and Charge Dynamics in Oxide Heterostructures	50,500
	Total		28,471,900
	Administrative Cost		28,400
07-005	Brookhaven National Lab	Sensitive Searches for CP-Violation in Hadronic Systems	14,221
08-002	Brookhaven National Lab	Strong Correlated Systems: From Graphene to Quark-Gluon Plasma	96,183
08-004	Brookhaven National Lab	Getting to know Your Constituents: Studies of Partonic Matter at the EIC	124,476
08-005	Brookhaven National Lab	Development of the Deuteron EDM Proposal	122,663

Project	Site name	Project Desc	FY2010 Cost
08-008	Brookhaven National Lab	Development of Small Gap Magnets and Vacuum Chamber for eRHIC	21,535
08-022	Brookhaven National Lab	Novel Methods for Microcrystal Structure Determination at NSLS and NSLS-II	106,074
08-025	Brookhaven National Lab	Combined PET/MRI Multimodality Imaging Probe	33,238
08-028	Brookhaven National Lab	Genomic DNA Methylation: The Epigenetic Response of Arabidopsis Thaliana Genome to Long-Term Elevated Atmospheric Temperature and CO2 in Global Warming	93,139
08-034	Brookhaven National Lab	Fabry-Perot Interferometer & Hard X-ray Photoemission	67,002
08-037	Brookhaven National Lab	Ultrafast Electron Diffraction for Transient Structure and Phase Transition Studies at the NSLS SDL	77,908
08-039	Brookhaven National Lab	The Development of a Laser Based Photoemission Facility for Studies of Strongly Correlated Electron Systems	106,680
08-042	Brookhaven National Lab	Theory of Electronic Excited States in Heterogeneous Nanosystems	106,770
08-043	Brookhaven National Lab	Nanofabrication Methods Using Solution-Phase Nanomaterials	107,448
08-051	Brookhaven National Lab	Identification of Organic Aerosols and Their Effects on Radiative Forcing	41,071
08-060	Brookhaven National Lab	Computational Climate Science	120,865
08-062	Brookhaven National Lab	A Novel Spintronic Room-Temperature High Purity Germanium X- and Gamma-Ray Spectrometer	38,714
08-082	Brookhaven National Lab	Biofuels and Nanotech for Improvement of Oil Heat Combustion Systems	2,227
08-083	Brookhaven National Lab	Solar Water Splitting: Quantum Theory of Photocatalytic Processes at the Water/Semiconductor Interface	9,781
09-001	Brookhaven National Lab	Nanoscale Electrode Materials for Lithium Batteries	607,487
09-002	Brookhaven National Lab	Bioconversion of Lignocelluloses to Ethanol and Butanol Facilitated by Ionic Liquid Preprocessing	589,177
09-003	Brookhaven National Lab	Organic Photovoltaics: Nanostructure, Solvent Annealing and Performance	685,258
09-004	Brookhaven National Lab	Surface Chemistry and Electrochemistry of Ethanol	695,711
09-005	Brookhaven National Lab	Synergistic Interactions Between Poplar and Endophytic Bacteria to Improve Plant Establishment and Feedstock Production on Marginal Soils	937,090
10-001	Brookhaven National Lab	Petascale Data Mining for BNL Data Intensive Sciences	231,458
10-006	Brookhaven National Lab	Solar Energy Source Evaluation for Smart Grid Development	148,525
10-007	Brookhaven National Lab	High Throughput Quantitative Biochemical Phenotyping	484,270
10-008	Brookhaven National Lab	Characterization of Materials in Extreme Environments for Advanced Energy Systems Using the National Synchrotron Light Source	237,458
10-010	Brookhaven National Lab	Development of an Ultrafast Electron Diffraction Facility for Condensed Matter Physics Challenges	319,459
10-012	Brookhaven National Lab	Design of Pt-free Electrocatalysts for Fuel Cell Oxygen Reduction Reactions	80,763
10-014	Brookhaven National Lab	Charge Generation and Transport in Films of Conjugated Polymers for Organic Photovoltaics BNL Part of a Collaborative NREL, BNL, ANL LDRD	46,122
10-015	Brookhaven National Lab	Photoelectrochemical Fuel Generation from Water and Carbon Dioxide	63,726
10-016	Brookhaven National Lab	Structural Basis of Light Perception by Phytochrome	119,015
10-017	Brookhaven National Lab	New Model Organisms for Analysis of Plant Metabolism	93,435
10-023	Brookhaven National Lab	Development of Microprobe, Multichannel Optical Multimodality for Biological Tissue Imaging	149,198
10-025	Brookhaven National Lab	Development of Large Liquid Argon Time Projection Chambers (LArTPC) for Future Neutrino Experiments	119,930

Project	Site name	Project Desc	FY2010 Cost
10-034	Brookhaven National Lab	Spin Waves in Artificial Magnonic Crystals: Fabrication, Imaging and Scattering	152,877
10-038	Brookhaven National Lab	Atomic Structure and Bonding of Cellulose	34,078
10-039	Brookhaven National Lab	EIC Polarized Electron Gun	145,727
10-040	Brookhaven National Lab	Development of a Laser System for Driving the Photocathode of the Polarized Electron Source for the EIC	230,599
10-041	Brookhaven National Lab	Simulation, Design, and Prototyping of an FEL, for Proof-of-Principle of Coherent Electron Cooling	94,938
10-042	Brookhaven National Lab	Realization of an e+A Physics Event Generator for the EIC	155,497
10-043	Brookhaven National Lab	Exploring Signatures of Saturation and Universality in e+A Collosions at eRHIC	45,761
10-044	Brookhaven National Lab	Electroweak Physics with an Electron Ion Collider	27,756
10-045	Brookhaven National Lab	LSST Astrophysics and Cosmology Initiative	354,165
10-046	Brookhaven National Lab	Epigenetics from Man to Plants	737,982
10-047	Brookhaven National Lab	New Methods for Analyzing Brain Function using MRI	719,925
10-048	Brookhaven National Lab	Radiotracer Development and PET Imaging for Obesity Studies	682,983
10-049	Brookhaven National Lab	Imaging Plants	685,253
10-050	Brookhaven National Lab	Proton EDM Research and Development	100,233
10-051	Brookhaven National Lab	In-situ reaction cell development for studying CO2 sequestration with the x-ray microprobe at the NSLS	50,558
10-052	Brookhaven National Lab	Enzymatic Control of Plant Cell Properties that Impact Conversion to Biofuels	155,807
	Total		11,272,216
	Administrative Cost	Paid by Laboratory overhead	
AF104	Idaho National Lab	Development of Advanced Burnup Measurement and Nuclear Forensics using Inductively Coupled Mass Spectroscopy (ICP-MS) Isotopics Analysis Techniques	333,932
AF105	Idaho National Lab	Development of a Small Sample Volume Mechanical Properties Testing Technique for Irradiated Fuels and Materials	199,628
AF106	Idaho National Lab	Irradiation-Induced Evolution of Defects and Microstructures in Nanocrystalline BCC Mo	277,913
AF107	Idaho National Lab	Microstructural Evolution of UO2 and U Under Irradiation	287,875
AF108	Idaho National Lab	Irradiation Testing and Molecular Modeling of Irradiation-Assisted Diffusion and Microstructural Evolution (FCCI)	223,974
AS105	Idaho National Lab	Rapid detection of plutonium, neptunium and technetium in water samples	258,157
AS106	Idaho National Lab	Evaluation of Covalent Interactions in Actinide Coordination Compounds	374,425
AS107	Idaho National Lab	Measuring Actinide Speciation in High pH Solutions	195,828
AS108	Idaho National Lab	Isotope Ratio Measurements Methods for Direct Analysis of Samples	247,352
AS109	Idaho National Lab	Investigation of Molten Bromide Salt Systems for Separation and Recovery of Actinides from Fission Products	268,548
BS107	Idaho National Lab	Conducting perovskite materials for catalytic applications	148,812
BS108	Idaho National Lab	Acoustic Nanostructures	132,685
BS109	Idaho National Lab	A New Paradigm for Robust Catalysts	152,287
BS110	Idaho National Lab	Advanced Multi-Layer Laminate Blast Mitigation System	152,461
CA115	Idaho National Lab	Investigation of Public Discourse Methods in Energy Policy Decision-making	103,022
CA116	Idaho National Lab	Development of Lignocellulosic Ethanol Production Potential in Idaho	149,469

Project	Site name	Project Desc	FY2010 Cost
CA117	Idaho National Lab	Optimization of Ceramic Waste Forms Used for Electrochemical Processing of Spent Nuclear Fuel	123,568
CA118	Idaho National Lab	Fabrication of Advanced ODS Alloys using Field Assisted Sintering	201,608
CA119	Idaho National Lab	Prediction and Monitoring of CO2 Behavior in Deep Reactive Geologic Formations	204,163
CA120	Idaho National Lab	Small specimen test techniques for evaluating radiation-induced changes in mechanical properties	151,881
CA121	Idaho National Lab	Design and Operational Improvements and LCA in Anaerobic Digestion of Fermented Dairy Manure using a 2-Stage Process	158,483
CA122	Idaho National Lab	Transmission Site Suitability Decision Support Technology	65,560
CA123	Idaho National Lab	CAES Vertical Axis Wind Turbine Project	49,563
EI107	Idaho National Lab	Generation and Expulsion of Hydrocarbons from Oil Shale	318,595
EI109	Idaho National Lab	Pathways to Energy Independence	49,857
EI111	Idaho National Lab	Altering Wettability by Chemical Amendments to Improve Gas Production from Tight Sands	140,618
EI112	Idaho National Lab	Hybrid Energy System Neural Reactance Dynamic Control System	212,367
EI113	Idaho National Lab	Feedstock Processing and Energy Storage	645,900
EI114	Idaho National Lab	Mesosilicate Supported CO2 Capture Material	197,458
EI115	Idaho National Lab	Membrane Separation System Research for the HYTEST Facility	198,379
EI116	Idaho National Lab	Conversion of light hydrocarbons to fuels and chemicals	198,774
EI117	Idaho National Lab	Hybrid systems process integration and dynamics studies	778,459
EI118	Idaho National Lab	Electrochemical reduction of CO2 to CO and Hydrocarbon Fuels	132,974
EN101	Idaho National Lab	Aleatory vs Epistemic Uncertainty in Seismic Hazard Analyses	87,203
EN102	Idaho National Lab	In-Pile Temperature Monitor and Control for ATR	166,298
EN103	Idaho National Lab	Multi-Rate Shock Physics Simulation of Blast and Penetration Events in Concrete	300,808
FF104	Idaho National Lab	Integrated Mesoscale Approach for the Simulation of Nuclear-Fuel Behavior	90,364
FF105	Idaho National Lab	Particle-discrete element model simulation of the coupling between material failure/deformation and fluid generation/flow	71,624
FF106	Idaho National Lab	Scaling of Welding Processes	110,802
FF107	Idaho National Lab	Enhanced Metal Ion Analysis	100,902
FF108	Idaho National Lab	Effect of glycosylation on the activity and stability of bacterial enzymes	99,792
GB104	Idaho National Lab	Metabolic Engineering of Alicyclobacillus acidocaldarius for Lactic Acid Production from Biomass Derived Monosaccharides	459,987
GB105	Idaho National Lab	Network Interaction In the Thermoacidophile Alicyclobacillus acidocaldarius In Response to Different Complex Carbon Sources	249,156
GS101	Idaho National Lab	Reducing CBM Water Discharge Volume	46,973
IC106	Idaho National Lab	Resilient Control System Network Agents	150,103
IC107	Idaho National Lab	Integrated Control System Data Fusion	371,931
IC108	Idaho National Lab	Wireless Sensor Testing	261,851
IC109	Idaho National Lab	Anomaly Detection, Diagnosis, and Resilient Control	242,328
IC110	Idaho National Lab	3D Spatial Representation in Support of Design Inspection and Verification	337,909
IC111	Idaho National Lab	Resilient Condition Assessment Monitoring (ReCAM) System	334,559
IC112	Idaho National Lab	Automated Differential Equation-Based Identification	151,128
IN101	Idaho National Lab	Design and Testing of a Mars Hopper	347,195

Project	Site name	Project Desc	FY2010 Cost
IN102	Idaho National Lab	In situ characterization of an oxide film for prediction of stress corrosion cracking susceptibility	40,452
NE146	Idaho National Lab	Process Modeling of Solvent Extraction Separations for Advanced Nuclear Fuel Cycles	292,103
NE147	Idaho National Lab	Reactivity of radiolytically produced nitrogen oxide radicals toward aromatic compounds.	199,500
NE150	Idaho National Lab	Viability Evaluations of Linear Variable Differential Transformers (LVDTs) and Capacitive Micro-Machined Ultrasonic Transducers (CMUTs) for In-Pile Instrumentation	284,489
NE153	Idaho National Lab	Development of Reactor Physics Sensitivity Analysis, Uncertainty Quantification, and Data Assimilation Capability at INL for Validation Applications	1,350,506
NE156	Idaho National Lab	Development of a Next-Generation Production Code for Nuclear Reactor System Analysis and Safety Margin Quantification	825,661
NE157	Idaho National Lab	Characterization of a Consolidated Electrochemical Technique for Separation and Recovery of Actinides from Fission Products in Oxide Fuels	236,277
NE158	Idaho National Lab	Advanced Instrumentation for In-pile Detection of Thermal Conductivity	316,375
NE159	Idaho National Lab	Multiscale Modeling and Simulation of Nuclear Fuel Performance	1,630,178
NE160	Idaho National Lab	Neptunium redox chemistry in irradiated aqueous nitric acid	300,676
NE161	Idaho National Lab	Reversible Gas Phase Reactions for Recovery of Graphite from Recycled HTGR TRISO Fuel	395,818
NE162	Idaho National Lab	Comprehensive Thermodynamic Models for Aqueous Partitioning of Actinides from Used Nuclear Fuel.	185,030
NE163	Idaho National Lab	Spatially-correlated microstructural characterization: From centimeters to nanometers	246,693
NE164	Idaho National Lab	ULTRASONIC TRANSDUCER SENSORS FOR IN-PILE DETECTION OF DIMENSIONAL CHANGES	334,188
NE165	Idaho National Lab	Smart grid impact on commercial nuclear plants	111,134
NE166	Idaho National Lab	Nuclear Reactor Safety Case Development: Models, Data, and Tools	785,970
NN113	Idaho National Lab	Active Interrogation Die-away Assay Development Program	320,491
NN114	Idaho National Lab	135Xe recovery from the spontaneous fission of 252Cf	47,094
NN115	Idaho National Lab	Developing a Next Generation, Risk-Informed Approach for Robust and Resilient Design Development (R2D2)	257,409
NN116	Idaho National Lab	NEUTRON SPECTROMETER DEVELOPMENT	255,245
NN117	Idaho National Lab	Nuclear Material Detection Using Neutron Time-of-Flight	100,046
NN118	Idaho National Lab	On-line Monitoring of Actinide Concentrations for Advanced Aqueous Separation Processes	145,980
NN119	Idaho National Lab	Develop a Safeguards Approach for INL Pyroprocessing lines for Demonstration to IAEA	577,687
NN120	Idaho National Lab	Radionuclide Collection-Detection Device for the in situ Remote Monitoring of 99Tc as a Proliferation Indicator	233,933
NS165	Idaho National Lab	Methodologies for the Design, Analysis, and Validation for Operation of Complex Resilient Networks	76,666
NS166	Idaho National Lab	Computational Materials Characterization	491,205
NS167	Idaho National Lab	Next Generation Control System “Smart Grid” Simulation Environment	257,749

Project	Site name	Project Desc	FY2010 Cost
NS168	Idaho National Lab	Cognitive/Intelligent Wireless Communication Devices	958,283
NS169	Idaho National Lab	Cyber Security for Protection of Critical Infrastructure Expanding the Scientific and Engineering Bases	180,558
NS170	Idaho National Lab	Object Reconstruction Technique for use in Radiography	12,493
NU100	Idaho National Lab	Human Performance Assessment for Technology Neutral Evaluation: Combining Virtual and Physical Testing for Design, Development and Review of Digital Control Systems and Interfaces	590,378
NU101	Idaho National Lab	Advanced Ceramic Nuclear Fuels	723,623
PH101	Idaho National Lab	Cognitive Network Engine and Simulation Framework,Ph.D. Candidate Proposal for Juan Deaton	182,447
PH102	Idaho National Lab	Application of Dynamic Bayesian Networks to Systems with Ambient Intelligence	113,573
PH103	Idaho National Lab	Characterization of Fluidized Beds via Pressure-Fluctuation Analysis	160,318
PH104	Idaho National Lab	Dissolution and Extraction Studies of Fission Products in Room Temperature Ionic Liquids and in Supercritical Fluid CO2 and Determination of Radiolytic Stability	151,459
PH105	Idaho National Lab	Advanced Adaptive Algorithms in Phased Array Ultrasonics for Materials Inspection	86,988
SM101	Idaho National Lab	Materials Research for Armor Development	397,000
ST130	Idaho National Lab	Investigation of Low Temperature Performance in Membrane Materials and Processes for Gas Separations	146,730
ST131	Idaho National Lab	High-Performance Polymer Membranes for High Temperature Gas Separations	153,800
ST132	Idaho National Lab	Triazine-Based CO2 Capture Agents	133,555
ST133	Idaho National Lab	Dynamic Impact Model and Information System to support Unconventional Fuels Development	112,436
ST134	Idaho National Lab	Near Field Impacts of In-Situ Oil Shale Development on Water Quality-	237,826
ST135	Idaho National Lab	Advanced Remote Sensing for Energy and Environmental Applications using Unmanned Aerial Vehicles	295,920
ST136	Idaho National Lab	Addressing the Spectrum of Nuclear Related NDE Needs: A hybrid laser ultrasonic and eddy current approach	182,692
ST139	Idaho National Lab	Water and Energy System Interdependency Modeling for Multicriteria Decision Analysis	402,339
ST140	Idaho National Lab	Degradation and Conversion of Lignin Using Extremophilic Systems	563,594
ST141	Idaho National Lab	Specific biological responses to nano metal oxides	300,259
ST142	Idaho National Lab	Development of Non-Lethal Methods for Enhanced Lipid Recovery from Microalgae	304,693
ST143	Idaho National Lab	Development of Thermally Generated in situ Precipitation Barriers due to Subsurface Heat Injection	33,603
ST144	Idaho National Lab	Hybrid Osmosis Water Purification Systems Research	120,369
ST145	Idaho National Lab	Biological Fixation of CO2 for Fuel and Chemical Production Using Acetogen Intermediary Metabolism	124,082
TM109	Idaho National Lab	Study of preconditioning techniques for Krylov solvers applied to hybrid neutron transport calculations	60,457
TM110	Idaho National Lab	Fickian and Thermal Diffusion in Nuclear Materials from Linear Response Theory and Multiscale Simulations	56,471
TM111	Idaho National Lab	Error estimation for stochastic uncertainty quantification	76,564
TM112	Idaho National Lab	Advanced Visualization Using Immersive Environments	127,147

Project	Site name	Project Desc	FY2010 Cost
	Total		28,603,700
	Administrative Cost		395,248
10EDGE001-703243	Kansas City Plant	NSMC PDRD Project	157,525
10EDGE002-703340	Kansas City Plant	NSMC PDRD Project	732,915
10EDGE003-703347	Kansas City Plant	NSMC PDRD Project	182,559
10EDGE004-703354	Kansas City Plant	NSMC PDRD Project	151,523
10EDGE005-703360	Kansas City Plant	NSMC PDRD Project	120,189
10EDGE006-703373	Kansas City Plant	NSMC PDRD Project	355,971
KCP08727-703703	Kansas City Plant	MicroSpring Development	18,935
KCP08735-703709	Kansas City Plant	GTS Valves	1,987
KCP08781-703745	Kansas City Plant	Rapid Response Technology Evaluation	41,297
KCP09667-703893	Kansas City Plant	Thin Film Electrical Devices/LTCC	276,321
KCP09829-703888	Kansas City Plant	LTCC Capacitor Technology	202,291
KCP09832-703898	Kansas City Plant	Software Product Line	1,191
KCP09838-703892	Kansas City Plant	Diamond Thin Film Heat Sinks	219,194
KCP09840-703894	Kansas City Plant	Non Destructive Slapper Test Methods	315,420
KCP09841-703997	Kansas City Plant	High Velocity Shock Extension	4,363
KCP09850-703911	Kansas City Plant	Optical Monitor System	221,882
KCP09853-703910	Kansas City Plant	Simulation Research for HDEP	355
KCP09877-703855	Kansas City Plant	Mock HE	867
KCP09878-703776	Kansas City Plant	Material Analysis	602
KCP09879-703771	Kansas City Plant	T00 WFO PDRD	749
KCP101002-703230	Kansas City Plant	Ruggedize FBG Demodulator	5,384
KCP101004-703357	Kansas City Plant	MILES Sig PIstol	318,994
KCP101005-703212	Kansas City Plant	BNNT	202,156
KCP101007-703215	Kansas City Plant	Conjugated Dienne Elastomer Development	303,455
KCP101011-703236	Kansas City Plant	Aerosol Jet Printing	183,470
KCP101015-703358	Kansas City Plant	NGVDSIII	293,061
KCP1010165-703305	Kansas City Plant	Control of Resonant Plates	18,066
KCP101040-703256	Kansas City Plant	Nonlinear Seam Welding	76,723
KCP101047-703254	Kansas City Plant	Gold-tin Die-Attach Ultrasonic	136,400
KCP101049-703216	Kansas City Plant	50 Micron Pitch Wire Bonding	35,757
KCP101049-703374	Kansas City Plant	Suitcase Comm System	224,590
KCP101053-703264	Kansas City Plant	ASIC Wire Bonding	103,688
KCP101181-703287	Kansas City Plant	RFIC/C MCM Rework Exploration	6,912
KCP101185-703313	Kansas City Plant	Future RF Testing Requirements	726
KCP101193-703336	Kansas City Plant	Investigation of Fiber Lasers	154,602
KCP101204-703258	Kansas City Plant	Custom SATA Core	27,160
KCP101239-703308	Kansas City Plant	Mistake Proofing Assembly Record	2,500
KCP101264-703268	Kansas City Plant	FBG Stronglink Position Sensor	85,405
KCP101328-703365	Kansas City Plant	Foundation BusMon Simulation	263,496
KCP10946-703283	Kansas City Plant	Increased Shock Capabilities	2,531
KCP10962-703204	Kansas City Plant	GTS Acid Cleaning Elimination	271,661

Project	Site name	Project Desc	FY2010 Cost
KCP10970-703203	Kansas City Plant	Spin Forming Evaluation	318,716
KCP10972-703226	Kansas City Plant	FO Embedded Data Acquisition	101,096
KCP10984-703348	Kansas City Plant	Hit Count MILES 2000	286,313
KCP10998-703244	Kansas City Plant	Super Getters Based on MOF's	159,544
KCP1114-703390	Kansas City Plant	Shell Mfg Development	430,867
	Total		7,019,409
	Administrative Cost		340,910
LANL-20061395PRD1	Los Alamos National Lab	Synthesis of Molecular Actinide Nitrides	10,181
LANL-20070171ER	Los Alamos National Lab	Understanding Dynamical Diversity of Extrasolar Planets	178,858
LANL-20070518DR	Los Alamos National Lab	Development of a Magnetically Driven Target for Thermo-Nuclear Burn Studies (U)	675,338
LANL-20070560PRD1	Los Alamos National Lab	Creating a Mathematical Foundation for High-Dimensional Search and Optimization Algorithms to Solve Complex Nonlinear Models	31,123
LANL-20070574PRD1	Los Alamos National Lab	Gamma-Ray Bursts and Gravitational Waves from Compact Mergers	214,990
LANL-20070645PRD2	Los Alamos National Lab	The Role of NS1 in Disrupting Immune Responses During Influenza Infection: a Modeling and Experimental Approach	96,410
LANL-20070723PRD3	Los Alamos National Lab	Chemically Synthesized Germanium Nanocrystals for Applications in Solar-Energy Conversion	5,507
LANL-20070751PRD4	Los Alamos National Lab	Detecting Dark Matter with Cryogenic Liquids	115,027
LANL-20070760PRD4	Los Alamos National Lab	Pore-Scale Modeling of Multiphase Flow and Reaction in Charged Porous Media	27,718
LANL-20070765PRD4	Los Alamos National Lab	Modeling Fast Basal Sliding of Ice Sheets for Climate and Sea Level Prediction	56,128
LANL-20070766PRD4	Los Alamos National Lab	Molecular Level Investigation of Tunable Energetic Mixtures	13,143
LANL-20070768PRD4	Los Alamos National Lab	Synthesis, Chemistry and Theoretical Studies of 5f-Element Hydride Complexes	10,296
LANL-20080001DR	Los Alamos National Lab	One-Step Biomass Conversion: Looking to Nature for Solutions to Energy Security	1,493,308
LANL-20080009DR	Los Alamos National Lab	Prompt and Radiochemical NTS Diagnostics and New Measurements (U)	1,515,636
LANL-20080015DR	Los Alamos National Lab	Hot Spot Physics and Chemistry in Energetic Materials Initiation	1,668,471
LANL-20080031ER	Los Alamos National Lab	Precision Cosmology and the Neutrino Sector	325,224
LANL-20080037DR	Los Alamos National Lab	Design, Synthesis, and Theory of Molecular Scintillators	1,566,251
LANL-20080039DR	Los Alamos National Lab	Global Monitoring of the Sky with Thinking Telescopes: Finding and Interrogating Cosmic Explosions	1,517,283
LANL-20080040DR	Los Alamos National Lab	Automated Change Detection in Remote Sensing Imagery	1,584,650
LANL-20080057DR	Los Alamos National Lab	Carrier Multiplication in Nanoscale Semiconductors for High-Efficiency, Generation-III Photovoltaics	1,249,640
LANL-20080080ER	Los Alamos National Lab	Finding the First Cosmic Explosions	298,882
LANL-20080085DR	Los Alamos National Lab	Construction and Use of Superluminal Emission Technology Demonstrators with Applications in Radar, Astrophysics, and Secure Communications	1,536,697
LANL-20080097DR	Los Alamos National Lab	Ultrafast Nanoscale XUV Photoelectron Spectroscopy	1,577,613
LANL-20080114DR	Los Alamos National Lab	Advanced Fuel Forms with Microstructures Tailored to Naturally Induce Fission Product Separation During Service	1,680,951
LANL-20080116DR	Los Alamos National Lab	Probing Physics Beyond the Standard Model through Neutron Beta Decay	1,596,329
LANL-20080126DR	Los Alamos National Lab	Flash before the Storm: Predicting Hurricane Intensification using LANL Lightning Data	1,393,961
LANL-20080128ER	Los Alamos National Lab	Nonconvex Compressed Sensing	295,034

Project	Site name	Project Desc	FY2010 Cost
LANL-20080130DR	Los Alamos National Lab	Cosmic Explosions Probing the Extreme: X-Ray Bursts, Superbursts, and Giant Flares on Neutron Stars	2,336,805
LANL-20080138DR	Los Alamos National Lab	Genomes to Behavior: Predicting Bacterial Response by Constrained Network Interpolation	1,768,803
LANL-20080164ER	Los Alamos National Lab	Materials and Device Optimization towards Room Temperature Spin-Transport through Single-Walled Carbon Nanotubes	349,370
LANL-20080182ER	Los Alamos National Lab	Foundations for Practical Pattern Recognition Systems	336,561
LANL-20080201ER	Los Alamos National Lab	The First Precise Determination of Quark Energy Loss in Nuclei	314,568
LANL-20080210ER	Los Alamos National Lab	Terahertz Generation Harnessing the Two-Stream Instability	308,298
LANL-20080221ER	Los Alamos National Lab	Nano-Fission-Material based Neutron Detectors	355,944
LANL-20080228ER	Los Alamos National Lab	Efficient Structures for Low-Energy Acceleration of Light Ions	287,927
LANL-20080230ER	Los Alamos National Lab	Identifying High Risk Species Critical for the Emergence of Pandemic Influenza	316,647
LANL-20080268ER	Los Alamos National Lab	The Effect of Acoustical Waves on Stick-Slip Behavior in Sheared Granular Media: Implications for Earthquake Recurrence and Triggering	352,106
LANL-20080300ER	Los Alamos National Lab	Multilevel Adaptive Sampling for Multiscale Inverse Problems	289,237
LANL-20080317ER	Los Alamos National Lab	Detection of Respiratory Infection by Scent	286,117
LANL-20080321ER	Los Alamos National Lab	Developing a Remote Sensing of the Solar Surface	334,190
LANL-20080323ER	Los Alamos National Lab	Spins in Organic Semiconductors	341,156
LANL-20080341ER	Los Alamos National Lab	Adaptive Algorithms for Inverse Problems in Imaging	361,509
LANL-20080342ER	Los Alamos National Lab	Entanglement in Quantum Ground States	314,420
LANL-20080380ER	Los Alamos National Lab	Designing Communication Methods for Bottom-Up Self-Assembled Nanowire Networks of Emerging Computer Architectures	288,599
LANL-20080391ER	Los Alamos National Lab	Stochastic Transport on Networks: Efficient Modeling And Applications to Epidemiology	315,541
LANL-20080394ER	Los Alamos National Lab	Strain-induced Novel Physical Phenomena in Epitaxial Ferroic Nanocomposites	321,759
LANL-20080395ER	Los Alamos National Lab	Genetically Engineered Polymer Libraries	366,763
LANL-20080409ER	Los Alamos National Lab	Compact Millimeter Wave Spectrometer Based on a Channel Drop Filter	311,358
LANL-20080414ER	Los Alamos National Lab	Novel High Performance Terahertz Metamaterial Photonic Devices	351,389
LANL-20080424ER	Los Alamos National Lab	CP-violating Moments of Atoms and Nuclei	330,775
LANL-20080448ER	Los Alamos National Lab	Critical and Crossover Behaviors at Jamming Transitions	327,999
LANL-20080464ER	Los Alamos National Lab	A New Approach to Unravel Complex Microbial Community Processes	552,744
LANL-20080473ER	Los Alamos National Lab	Ultrafast Nanoplasmonics for Photonics and Quantum Control at the Nanoscale	300,387
LANL-20080519ER	Los Alamos National Lab	Probing Unconventional Superconductivity in Heavy Fermion Thin Films	330,962
LANL-20080523ER	Los Alamos National Lab	Photocatalytic Materials Based on Quantum Confined Semiconductor Nanocrystals	473,154
LANL-20080562ER	Los Alamos National Lab	Time-reversible Born-Oppenheimer Molecular Dynamics	357,900
LANL-20080603ER	Los Alamos National Lab	Nonequilibrium Mechanics of Geomaterials	367,790
LANL-20080618ER	Los Alamos National Lab	Evolution and Function of Microbial Signatures	359,462
LANL-20080636ER	Los Alamos National Lab	Probing physics beyond the Standard Model with supernovae	212,283
LANL-20080661DR	Los Alamos National Lab	Novel Signatures of Beyond the Standard Model at the Large Hadron Collider	382,689
LANL-20080662DR	Los Alamos National Lab	Information Science and Technology: Metagenomics	617,216
LANL-20080663DR	Los Alamos National Lab	High-Precision Spectroscopic Search for Variation of the Fine-Structure Constant	1,416,637
LANL-20080671DR	Los Alamos National Lab	Statistical Physics of Networks, Information and Complex Systems	567,311
LANL-20080673DR	Los Alamos National Lab	Complex Biological and Bio-Inspired Systems	552,531

Project	Site name	Project Desc	FY2010 Cost
LANL-20080689PRD1	Los Alamos National Lab	Dynamics of Quantum First Order Phase Transitions	82,606
LANL-20080695PRD1	Los Alamos National Lab	First-Principles-Based Equations of State Including Multi-Phase Chemical Equilibrium	42,435
LANL-20080698PRD1	Los Alamos National Lab	Strong dynamics in Physics Beyond the Standard Model	3,300
LANL-20080700PRD1	Los Alamos National Lab	Study of Hybrid Semiconductor/Molecular Systems for Photo-production of Hydrogen	73,567
LANL-20080703PRD1	Los Alamos National Lab	Spectroscopic Studies and Photonic Applications of "Giant" Nanocrystal Quantum Dots	46,098
LANL-20080716ER	Los Alamos National Lab	Coupling of Genetics and Metabolism and the Orgin of Life	375,877
LANL-20080723PRD2	Los Alamos National Lab	Nonequilibrium Quantum Phase Transitions	124,237
LANL-20080724PRD2	Los Alamos National Lab	Towards Human Level Artificial Intelligence: A Cortically Inspired Semantic Network Approach to Information Processing and Storage	55,590
LANL-20080726PRD2	Los Alamos National Lab	Modeling control of viruses by immune responses	65,662
LANL-20080727PRD2	Los Alamos National Lab	Multi-scale Analysis of Multi-physical Transport Processes of Electroosmosis in Porous Media	188,759
LANL-20080728PRD2	Los Alamos National Lab	Dissipation and Decoherence in Complex Many-Body Systems	220,078
LANL-20080729DR	Los Alamos National Lab	Information Science and Technology: Streaming Data	603,351
LANL-20080730PRD2	Los Alamos National Lab	Finite State Projection for Accurate Solution of the Master Equation	73,320
LANL-20080731PRD2	Los Alamos National Lab	Strongly Coupled Fermion Systems: From Atomic Gases to Dark Matter	41,128
LANL-20080780PRD2	Los Alamos National Lab	Synthesis and Characterization of Novel Metal-Organic Frameworks for Hydrogen Storage	109,337
LANL-20080782PRD3	Los Alamos National Lab	Creating Schrodinger Cats Using a Bose-Einstein Condensate	119,456
LANL-20080784PRD3	Los Alamos National Lab	Bio-Directed Assembly of Multicolored One-Dimensional Quantum Dot Light-Emitting Devices	152,564
LANL-20080785PRD3	Los Alamos National Lab	Semiconductor Nanowire Heterostructures	66,616
LANL-20080786PRD3	Los Alamos National Lab	Matter and Light	71,412
LANL-20080787PRD3	Los Alamos National Lab	Statistical Physics of Optimization	136,747
LANL-20080788PRD3	Los Alamos National Lab	Fluvial Geomorphic Response to Permafrost Thawing: Implications for the Global Carbon Budget and Arctic Hydrology	108,197
LANL-20080789PRD3	Los Alamos National Lab	Determinaing the Mechanisms of Enzymes Xylose Isomerase and HIV Protease using Neutron Crystallography	142,661
LANL-20080791PRD4	Los Alamos National Lab	Local Atomic Arrangements in Phase Change Materials	153,781
LANL-20080793PRD4	Los Alamos National Lab	Effect of Charging on Carrier Relaxation Dynamics in Quantum Confined Semiconductor Nanocrystals	137,692
LANL-20080794PRD4	Los Alamos National Lab	The Kondo Lattice Problem	148,629
LANL-20080795PRD4	Los Alamos National Lab	Classical/quantum Mechanical Simulations of Electronic Nanomaterials	117,120
LANL-20080796PRD4	Los Alamos National Lab	Chiral Metamaterials for Terahertz Frequencies	139,931
LANL-20080797PRD4	Los Alamos National Lab	Energy Transfer Processes in Type-Specific Single-Walled Carbon Nanotubes	166,293
LANL-20090006DR	Los Alamos National Lab	Synthetic Cognition through Peta-Scale Models of the Primate Visual Cortex	1,656,437
LANL-20090017DR	Los Alamos National Lab	Predictive Design of Noble Metal Nanoclusters	1,542,765
LANL-20090022DR	Los Alamos National Lab	Understanding Anisotropy to Develop Superconductors by Design	1,771,845
LANL-20090035DR	Los Alamos National Lab	Spatial-temporal Frontiers of Atomistic Simulations in the Petaflop Computational World	1,573,184
LANL-20090053DR	Los Alamos National Lab	Double Beta Decay	2,075,658

Project	Site name	Project Desc	FY2010 Cost
LANL-20090058DR	Los Alamos National Lab	Turbulence By Design	1,760,286
LANL-20090061DR	Los Alamos National Lab	Enhance Radiation Damage Resistance via Manipulation of the Properties of Nanoscale Materials	1,547,371
LANL-20090098DR	Los Alamos National Lab	Understanding Drug Resistance and Co-infectivity in HIV and TB Infections	1,787,436
LANL-20090104DR	Los Alamos National Lab	RADIUS: Rapid Automated Decomposition of Images for Ubiquitous Sensing	1,394,736
LANL-20090117DR	Los Alamos National Lab	Distributed Metabolic Regulation: the Key to Synthetic Biology for Carbon Neutral Fuels	1,600,078
LANL-20090163ER	Los Alamos National Lab	Using Small Molecules to Control RNA Conformations	367,054
LANL-20090174ER	Los Alamos National Lab	Understanding the Feedback of Active Galaxies in Galaxy Clusters	353,730
LANL-20090176ER	Los Alamos National Lab	The First Characterization of Large Interstellar Dust	310,890
LANL-20090186ER	Los Alamos National Lab	Molecular Scale Shock Response of Explosive1	374,143
LANL-20090187ER	Los Alamos National Lab	Multifunctional Materials	372,171
LANL-20090189ER	Los Alamos National Lab	Efficient and Selective Photon Detection	365,913
LANL-20090202ER	Los Alamos National Lab	Functional Gene Discovery Using RNAi-based Gene Silencing	403,049
LANL-20090210ER	Los Alamos National Lab	Developing Adaptive High-Order Divergence-Free Methods for Magneto-Hydrodynamics Turbulence Simulations	358,826
LANL-20090217ER	Los Alamos National Lab	Soild Helium-4: A Supersolid or Quantum Glass?	336,280
LANL-20090250ER	Los Alamos National Lab	Efficient Interdiction	334,417
LANL-20090253ER	Los Alamos National Lab	Photodynamics and Photochemistry of Carbon Nanotube Materials	362,677
LANL-20090260ER	Los Alamos National Lab	Compositionally Graded InGaN-based High Efficiency Photovoltaic Devices	406,902
LANL-20090265ER	Los Alamos National Lab	A Novel Millimeter-Wave Traveling-Wave Tube Based on an Omniguide Structure	413,504
LANL-20090269ER	Los Alamos National Lab	Development of a Muon to Electron Conversion Experiment at LANSCE/MaRIE: Search for Physics beyond the Standard Model	312,262
LANL-20090284ER	Los Alamos National Lab	Unconventional Methods for Quantum-enhanced Metrology	407,858
LANL-20090303ER	Los Alamos National Lab	First Unambiguous Measurement of Jet Fragmentation and Energy Loss in the Quark Gluon Plasma	613,520
LANL-20090305ER	Los Alamos National Lab	A Visionary New Approach to Assess Regional Climate Impacts on Vegetation Survival and Mortality	285,336
LANL-20090306ER	Los Alamos National Lab	Breakthroughs in Magnetic Reconnection Enabled by Petaflop Scale Computing	363,469
LANL-20090312ER	Los Alamos National Lab	Disentangling Quantum Entaglement	358,229
LANL-20090321ER	Los Alamos National Lab	Compact Solid State Tunable THz Source	458,729
LANL-20090325ER	Los Alamos National Lab	Plasmonic Bandgap Materials: Fusion of Interparticle and Particle-Photon Interactions at the Nanoscale	374,563
LANL-20090335ER	Los Alamos National Lab	Probing the Origin and Consequences of Quantum Critical Fluctuations	352,198
LANL-20090363ER	Los Alamos National Lab	Membrane Micro-chromatography: A Novel Approach to Preparative Nucleic Acid Sample Processing	362,631
LANL-20090369ER	Los Alamos National Lab	Linear Scaling Quantum-Based Interatomic Potentials for Energetic Materials	352,527
LANL-20090393ER	Los Alamos National Lab	Transparent Organic Solar Cells	418,810
LANL-20090394ER	Los Alamos National Lab	Backward Stimulated Raman and Brillouin Scattering of Laser in the Collisional Regime	346,719
LANL-20090397ER	Los Alamos National Lab	Uranium Imido Complexes as Catalysts for the Reduction of Carbon Dioxide	377,325
LANL-20090410ER	Los Alamos National Lab	Transport in Magnetized Dense Plasmas for Magneto-Inertial Fusion	360,944
LANL-20090420ER	Los Alamos National Lab	A Hybrid Transport-Diffusion Method for Radiation Hydrodynamics	365,709
LANL-20090424ER	Los Alamos National Lab	Robust 3D moving mesh adaptation based on Monge-Kantorovich optimization	376,298

Project	Site name	Project Desc	FY2010 Cost
LANL-20090425ER	Los Alamos National Lab	Isotopic Tracer for Climate Relevant Secondary Organic Aerosol	402,224
LANL-20090443ER	Los Alamos National Lab	Evolving a Thermostable Cellulase by Internal Destabilization and Evolution	371,353
LANL-20090466ER	Los Alamos National Lab	Novel Cone Targets for Efficient Energetic Ion Acceleration for Light Ion-Driven Fast Ignition Fusion	529,627
LANL-20090475DR	Los Alamos National Lab	Seaborg Institute Fellows	1,116,809
LANL-20090476DR	Los Alamos National Lab	New and Enhanced Capabilities in Quantum Information Processing	446,958
LANL-20090477DR	Los Alamos National Lab	Revolutionary Science at the Intersection of Extreme and Transient Events, Natural Hazards, and National Security	1,346,335
LANL-20090491PRD1	Los Alamos National Lab	Unconventional Superconductivity in Heavy Fermion Materials	137,700
LANL-20090492PRD1	Los Alamos National Lab	Vanadium Catalyzed Aerobic Oxidations	89,973
LANL-20090493PRD1	Los Alamos National Lab	Disorder in Frustrated Systems	156,733
LANL-20090498PRD2	Los Alamos National Lab	Measurement of Transverse Single-Spin Asymmetries of Neutral Pion and Eta Meson Production in Polarized p+p Collisions Using the PHENIX Detector at RHIC	203,046
LANL-20090513PRD1	Los Alamos National Lab	In situ X-ray Microdiffraction Study of Nanomechanical Behavior	180,289
LANL-20090514PRD1	Los Alamos National Lab	Novel Fabrication of Metal-Semiconductor Heterostructured Nanowires	141,636
LANL-20090516PRD1	Los Alamos National Lab	Multiscale Variational Approaches to Markov Random Fields	129,420
LANL-20090518ER	Los Alamos National Lab	General Relativity as a Probe of Cosmology	190,035
LANL-20090519PRD2	Los Alamos National Lab	Nanogenerators Driven by Both Magnetic and Mechanical Waves	148,891
LANL-20090520PRD2	Los Alamos National Lab	Quantum Information Processing: Capabilities and Limitations	187,158
LANL-20090521PRD2	Los Alamos National Lab	Exploring the Expanding Universe and the Nature of Dark Energy	156,588
LANL-20090522PRD2	Los Alamos National Lab	Neutrino Physics and Its Applications	131,966
LANL-20090523PRD2	Los Alamos National Lab	Hybrid Semiconductor-metal Nanostructures for Amplification of Surface Plasmons	131,802
LANL-20090524PRD2	Los Alamos National Lab	Analysis of Protein Structure-Function Relations in Antibiotic Biosynthesis and Signal Transducing Receptors	80,642
LANL-20090525PRD2	Los Alamos National Lab	Non-equilibrium Phenomena in Physics, Biology and Computer Science	189,608
LANL-20090526PRD2	Los Alamos National Lab	Carbon and Oxygen Isotopic Variability in Succulent Plants and Their Spines: A New Tool for Climate and Ecosystem Studies in Desert Regions	139,915
LANL-20090527PRD2	Los Alamos National Lab	Probing Molecular Physics of Biological Nano-channels: from Viruses to Biosensors	198,373
LANL-20090528PRD2	Los Alamos National Lab	Theoretical/Computational Research on Particle Acceleration by Intense Laser Pulse	171,162
LANL-20090530PRD2	Los Alamos National Lab	Theoretical Investigations of Ribosome Dynamics	139,028
LANL-20090532PRD3	Los Alamos National Lab	Single-Nanocrystal Photon-Correlation Studies of Carrier Multiplication	140,750
LANL-20090533PRD3	Los Alamos National Lab	Correlation in Ultracold and Ultrafast Systems	100,701
LANL-20090534PRD3	Los Alamos National Lab	New Generation of Fluorescent Probes for In-Vivo Imaging	148,135
LANL-20090535PRD3	Los Alamos National Lab	Experimental Studies On the Origin of Nucleon Spin	158,933
LANL-20090536PRD3	Los Alamos National Lab	Cold-Atom-Based Theory and Quantum Simulations for Many-body Physics	109,850
LANL-20090537PRD3	Los Alamos National Lab	Casimir Interactions and Their Applications to Nanomachines and Atom-Chips	128,605
LANL-20090538PRD3	Los Alamos National Lab	Biocompatibility and Nanotoxicity: Characterization and Manipulation of Interactions at the Biomolecule-Nanomaterial Interface	127,772
LANL-20090539PRD4	Los Alamos National Lab	Study of Chemical and Electronic Structure in Metal-Containing Nanoparticles and Nanoclusters	128,124
LANL-20090540PRD4	Los Alamos National Lab	Dopant Distribution and Interface Studies of Si and Ge Nanowire Heterostructures	137,541
LANL-20090541PRD4	Los Alamos National Lab	Carrier Multiplication by Hot Electrons in Single PbSe Nanocrystals	112,301

Project	Site name	Project Desc	FY2010 Cost
LANL-20090542PRD4	Los Alamos National Lab	Control of Shape, Dispersion and Size of Disorder in High-Temperature Superconducting Films and its Effect on in-Field Superconducting Properties	75,966
LANL-20100006DR	Los Alamos National Lab	Nanoscale Superconductivity for Single Photon Detection	1,739,216
LANL-20100015DR	Los Alamos National Lab	New Generation Hydrodynamic Methods: from Art to Science (U)	1,176,515
LANL-20100023DR	Los Alamos National Lab	Cosmological Signatures of Physics Beyond the Standard Model: Petascale Cosmology Meets the Great Surveys	1,524,276
LANL-20100025DR	Los Alamos National Lab	Integrated Experimentation and Hybrid Modeling for Prediction and Control of Multiphase Flow and Reaction in CO2 Injection and Storage	1,523,288
LANL-20100026DR	Los Alamos National Lab	Isolating the Influence of Kinetic and Spatial Effects on Dynamic Damage Evolution	1,481,412
LANL-20100027DR	Los Alamos National Lab	Transformative Bioassessment of Engineered Nanomaterials: Materials by Design	1,646,582
LANL-20100030DR	Los Alamos National Lab	Optimization and Control Theory for Smart Grids	1,640,281
LANL-20100040DR	Los Alamos National Lab	Intelligent Wind Turbines	1,866,074
LANL-20100043DR	Los Alamos National Lab	Understanding and Controlling Complex States Emerging from Frustration	1,874,130
LANL-20100044DR	Los Alamos National Lab	First Principles Predictive Capabilities for Transuranic Materials: Mott Insulators to Correlated Metals	1,589,358
LANL-20100045DR	Los Alamos National Lab	Information Science for Understanding Complex Quantum Matter	1,644,820
LANL-20100048DR	Los Alamos National Lab	Molecular Forensic Science of Nuclear Materials	1,509,375
LANL-20100063DR	Los Alamos National Lab	CLEAN Detection & Identification of Dark Matter	1,877,700
LANL-20100073DR	Los Alamos National Lab	Understanding, Exploiting, and Controlling Competing Interactions in Complex Oxides	1,463,518
LANL-20100089DR	Los Alamos National Lab	Upgrading Renewable and Sustainable Carbohydrates for Production of High Energy Density Fuels.	1,472,547
LANL-20100097DR	Los Alamos National Lab	Probing Brain Dynamics by Ultra-Low Field Magnetic Resonance	1,684,763
LANL-20100129ER	Los Alamos National Lab	A Molecular View of Cellulase Activity: A Single-Molecule Imaging and Multi-Scale Dynamics Approach	413,460
LANL-20100141ER	Los Alamos National Lab	Earth Tremor, Time Reversal and Earthquake Forecasting	376,915
LANL-20100144ER	Los Alamos National Lab	New Generation “Giant” Nanocrystal Quantum Dots for Transformational Breakthrough in Solid State Lighting	433,864
LANL-20100160ER	Los Alamos National Lab	New Catalytic Methods for Selective C-C Bond Cleavage in Lignin: Towards Sustainable and Renewable Chemicals and Fuels	345,228
LANL-20100172ER	Los Alamos National Lab	Probing the Structure of Superconducting States with Rotating Magnetic Field	413,325
LANL-20100182ER	Los Alamos National Lab	Biocatalysts: A Green Chemistry Approach to Industrially Relevant Compounds	397,566
LANL-20100183ER	Los Alamos National Lab	Ultrafast Cathodoluminescence for Improved Gamma-Ray Scintillators	428,028
LANL-20100184ER	Los Alamos National Lab	Characterizing the Th-229 Isomer: A Nuclear Clock Candidate	392,979
LANL-20100189ER	Los Alamos National Lab	A Plasma-Based Ultrafast THz Source	324,053
LANL-20100191ER	Los Alamos National Lab	Hawking-Unruh Effect in Atomic Bose-Einstein Condensates	349,901
LANL-20100210ER	Los Alamos National Lab	Understanding and Controlling Complex States of Matter in New Iron-arsenide Superconductors through Strain and Disorder	467,488
LANL-20100215ER	Los Alamos National Lab	Bacterial Invasion Reconstructed Molecule by Molecule	356,172
LANL-20100228ER	Los Alamos National Lab	Developing Actinide Catalysis for Cleaning Dirty Fossil Feedstocks	378,085
LANL-20100230ER	Los Alamos National Lab	Planetary Analog Geochemical Explorations with Laser-Induced Breakdown and Raman Spectroscopies	364,231
LANL-20100237ER	Los Alamos National Lab	One-Dimensional Nanomaterials for Enhanced Solar Conversion	350,418

Project	Site name	Project Desc	FY2010 Cost
LANL-20100241ER	Los Alamos National Lab	A Metamaterial-Inspired Approach to RF Energy Harvesting	439,069
LANL-20100257ER	Los Alamos National Lab	Metabolic Regulation of Light-harvesting and Energy Transfer	376,131
LANL-20100261ER	Los Alamos National Lab	Electron Spin Injection, Transport and Detection in Semiconductor Nanowires	365,175
LANL-20100262ER	Los Alamos National Lab	Ultra High Quality Electron Source for Next Generation Vacuum Electronic Devices	368,155
LANL-20100273ER	Los Alamos National Lab	A Novel Brownian-Poisson Algorithm for Modeling Ion Transport through Artificial Ion Channels	370,153
LANL-20100285ER	Los Alamos National Lab	Transformational Approach for the Fabrication of Semiconductor Nanowires: “Flow” Solution-Liquid-Solid Growth	395,206
LANL-20100296ER	Los Alamos National Lab	Cold Atoms in Quantum Periodic Potentials	363,058
LANL-20100298ER	Los Alamos National Lab	Unraveling Electron-Boson Interactions in High-Tc Superconductors With Ultrafast Infrared Spectroscopy	411,541
LANL-20100302ER	Los Alamos National Lab	BEC Waveguide Optics	390,114
LANL-20100308ER	Los Alamos National Lab	GO FISH, A Smart Capture and Detection Strategy for Intact and Viable Pathogens	354,723
LANL-20100310ER	Los Alamos National Lab	Digital Trigger for the High Altitude Water Cherenkov (HAWC) Observatory	539,563
LANL-20100312ER	Los Alamos National Lab	Understanding Arctic Hydrologic Response to Climate Change	390,764
LANL-20100328ER	Los Alamos National Lab	Deciphering the Controlled Chaos of Intrinsically Disordered Proteins	332,100
LANL-20100366ER	Los Alamos National Lab	Ultra-Fast DFT-Quality Forces for Molecular Dynamics Simulations of Materials	360,310
LANL-20100389ER	Los Alamos National Lab	Solid State Neutron Detector	358,132
LANL-20100394ER	Los Alamos National Lab	Probing the Origin of Matter in the Universe	355,097
LANL-20100395ER	Los Alamos National Lab	Parallel Algorithms for Robust Phylogenetic Inference	359,329
LANL-20100413ER	Los Alamos National Lab	Revolutionizing Short-Pulse Laser Generation using Stimulated Raman Scattering	361,314
LANL-20100438ER	Los Alamos National Lab	Surface Fitting for Thermodynamically Consistent Evaluation of Tabular Equations of State	340,113
LANL-20100441ER	Los Alamos National Lab	LES Modeling for Predictive Simulations of Material Mixing	260,922
LANL-20100456ER	Los Alamos National Lab	Algal Lipid Regulatory Networks	322,594
LANL-20100460ER	Los Alamos National Lab	Robust Unsupervised Operation Under Uncertainty Through Information Theoretic Optimization of Complex Systems.	321,897
LANL-20100469ER	Los Alamos National Lab	Controlling Charge Recombination Processes in “Giant” Nanocrystal Quantum Dots Toward High-Efficiency Solid-State Lighting	387,171
LANL-20100479ER	Los Alamos National Lab	Modeling the Global Circulation and Evolution of Influenza A Virus	367,110
LANL-20100516ER	Los Alamos National Lab	Quantum Cryptographic QCard Proof-Of-Concept	186,904
LANL-20100518ER	Los Alamos National Lab	Combination Drug Therapy for Influenza H1N1 Infection	118,088
LANL-20100520ER	Los Alamos National Lab	Protein-protein Interactions in Host Response to H1N1	179,297
LANL-20100522ER	Los Alamos National Lab	Pre-Symptomatic and Strain Specific Diagnosis of Influenza	173,799
LANL-20100523ER	Los Alamos National Lab	Flow Cytometry Technology Applied to the Characterization and Optimization of Algal Cells for Biofuel Production	120,852
LANL-20100525ER	Los Alamos National Lab	Enhanced Battery Performance	149,894
LANL-20100528ER	Los Alamos National Lab	Design of Robust Waste Nuclear Waste Forms via Radioparagenesis	176,993
LANL-20100531DR	Los Alamos National Lab	Bridging Equilibrium and Non-equilibrium Statistical Physics	1,071,704
LANL-20100533ER	Los Alamos National Lab	Detecting and Defending Against Viral Threats in Cyberspace	532,964
LANL-20100536ER	Los Alamos National Lab	Efficient & Rapid Trajectory Detection for Space Situational Awareness Using High--Speed Single Photon Sensor Data	245,827
LANL-20100538ER	Los Alamos National Lab	THz Generation, Detection, and Control using Superconducting Josephson Junctions	246,392

Project	Site name	Project Desc	FY2010 Cost
LANL-20100541ER	Los Alamos National Lab	A Systematic Single Cell Genomics Approach to Studying the Dominant Unculturable Microbiota of Important Environmental Communities	274,935
LANL-20100543ER	Los Alamos National Lab	A Predictive Molecular Site-Specific Natural Abundance Isotopic Signature Capability for Attribution of Chemical, Nuclear, and Biochemical Threats	175,190
LANL-20100545ER	Los Alamos National Lab	Polaron Dynamics of Hypervalent Urania and Other Complex Materials	195,715
LANL-20100557ER	Los Alamos National Lab	OpenCL Abstractions for Scientific Computing	162,781
LANL-20100559ER	Los Alamos National Lab	The PetaFlops Router: Malleable Supercomputers for Application Co-design	206,219
LANL-20100572ER	Los Alamos National Lab	From Sensor to Scientist: Optimizing the Delivery of Hyperspectral Information for Efficient Signature Detection	223,004
LANL-20100577ER	Los Alamos National Lab	Robust, Low Power, and Miniature Mixed Potential Sensors for the Detection and Discrimination of High Explosives	192,368
LANL-20100582ER	Los Alamos National Lab	DOVE: Discovery Of Vegetation over the Earth Using High Resolution Remote Sensing Data	193,608
LANL-20100594PRD1	Los Alamos National Lab	Control/Path Planning Strategies for Nonholonomic, High-Speed, Autonomous Unmanned Ground Vehicles	109,983
LANL-20100595PRD1	Los Alamos National Lab	Development of an acoustic exotic metamaterial slab using the acoustic radiation force and micro-streaming of high-order Bessel helicoidal beams	138,972
LANL-20100596PRD1	Los Alamos National Lab	Atomic Interface Design of Nanocomposites for Extreme Mechanical Loadings	77,561
LANL-20100597ER	Los Alamos National Lab	Fundamental Research in Quantum Communications	389,453
LANL-20100598PRD1	Los Alamos National Lab	Multi-scale Computational Approach for Studying Radiation Resistant Nanoclustered Alloy	69,362
LANL-20100599PRD1	Los Alamos National Lab	Extra-Long-Range Energy Transfer in Hybrid Semiconductor-Metal Nanoassemblies	87,178
LANL-20100601PRD2	Los Alamos National Lab	Unique Semiconductor Nanowire Heterostructures in Physics and Applications	102,940
LANL-20100603PRD2	Los Alamos National Lab	Analysis of Protein Structure-Function Relations in Antibiotic Biosynthesis and Signal Transducing Receptors	112,155
LANL-20100604PRD2	Los Alamos National Lab	Quantitative Modeling of Cellular Noise	96,116
LANL-20100605PRD2	Los Alamos National Lab	Tracing Fluctuations in the Universe	89,284
LANL-20100607PRD2	Los Alamos National Lab	Search for CP and CPT Violation in the Neutrino Sector	43,968
LANL-20100608PRD2	Los Alamos National Lab	Seeing the Invisible: Observational Signatures of Dark Matter	63,998
LANL-20100610PRD2	Los Alamos National Lab	Probing Fundamental Physics with Cosmological Surveys	7,857
LANL-20100611PRD2	Los Alamos National Lab	Physics of Cosmic Ray Shocks and the High Energy Universe	33,591
LANL-20100612ER	Los Alamos National Lab	Statistical Modeling for Nuclear Fuel Rod Damage	142,428
LANL-20100613ER	Los Alamos National Lab	Anthropogenic CO2 in the Atmosphere Measured Directly and through Indicator Species	151,917
LANL-20100614ER	Los Alamos National Lab	AC Losses in DC Superconducting Cables	141,448
LANL-20100619PRD2	Los Alamos National Lab	Quantum knowledge: a revolutionary approach to measurement	29,415
LANL-20100621ER	Los Alamos National Lab	Name Disambiguation and Semantic Networks	61,089
LANL-20100622ER	Los Alamos National Lab	DARTS Thermal Storage Technology	96,409
LANL-20100623ER	Los Alamos National Lab	A Novel Technique for Introduction of Fission Gas Xe in Solids	115,074
LANL-20100624PRD3	Los Alamos National Lab	Polymer-Coated Surfactant Micro-reactors for Applications in Chemical Sensing, Contaminant Remediation and Synthetic Biology	27,488
LANL-20100625PRD3	Los Alamos National Lab	Roles of Fungi in Terrestrial Ecosystem Carbon Cycling	23,412
LANL-20100626PRD3	Los Alamos National Lab	Growth of Actinide-Nanocomposites using Hyperbaric Laser Chemical Vapor Deposition.	19,363

Project	Site name	Project Desc	FY2010 Cost
LANL-20100627PRD3	Los Alamos National Lab	Stochastic Spatially Explicit HIV Dynamic Models	20,069
LANL-20100630ER	Los Alamos National Lab	Exploring the Physical Basis of Nano/Micro-scale Thermodiffusion Phenomena at Near-Critical Pressures (U)	99,248
LANL-20109999ER	Los Alamos National Lab	Post-Project Debits and Credits	105,983
	Total		126,380,032
	Administrative Cost	Paid by Laboratory overhead	
LB08001	L. Berkeley National Lab	Optimization of Flux Pinning Type II Superconductor Based Magnets for Soft X-ray Scattering Applications	201,956
LB08002	L. Berkeley National Lab	Holistic Approach to Energy Efficient Computing Architecture	584,863
LB08003	L. Berkeley National Lab	Low Order Models for Simulation for Ballistic Transport in Nanoscale Devices	167,263
LB08008	L. Berkeley National Lab	Probing Transient Molecular Entanglement Using Femtosecond High Resolution Delayed-Field Coincidence Imaging	138,287
LB08009	L. Berkeley National Lab	Soft X-Ray Scattering as a New Probe of Polymer Systems	276,977
LB08011	L. Berkeley National Lab	Development of a 100 km3 Neutrino Detector for Ultra High Energy Neutrinos	175,790
LB08013	L. Berkeley National Lab	Light-Boosted Fermentation in the Yeast Saccharomyces Cervisiae	133,971
LB08015	L. Berkeley National Lab	Energy-Smart Disk-Based Mass Storage System	177,700
LB08017	L. Berkeley National Lab	Quantum Information Science with Integrated Color Centers in Diamond	210,058
LB08018	L. Berkeley National Lab	Coupled Process Models, Separations, and Monitoring for Advanced Nuclear Fuel Cycles	254,510
LB08020	L. Berkeley National Lab	Decoding Dark Energy with Weak Gravitational Lensing	163,459
LB08022	L. Berkeley National Lab	Experimental Demonstration of a Laser-Plasma-Accelerator Driven Free-Electron Laser	419,018
LB08023	L. Berkeley National Lab	Lorentz Compaction of Scales for Ultra-efficient Simulation of Advanced Accelerators (and Other Systems)	170,053
LB08028	L. Berkeley National Lab	Advance Silicon Detectors for Future Short Pulse X-ray Sources	93,662
LB08033	L. Berkeley National Lab	Carbon Uptake and Partitioning in Plants and Algae	425,637
LB08034	L. Berkeley National Lab	Microbiomics of Complex Microbial Communities in Environmental Samples	302,433
LB08035	L. Berkeley National Lab	Enhancing the Effectiveness of Manycore Chip Technologies for High-End Computing	206,631
LB08036	L. Berkeley National Lab	Reference Benchmarks for the Dwarfs (Algorithms)	207,197
LB08043	L. Berkeley National Lab	R and D for Fast, Low-noise CCD Readout and Single Photon Detection Capability	214,132
LB08044	L. Berkeley National Lab	Understanding How Nanoscale Interfaces Modify Predicted Optical, Vibrational, and Electronic Properties	136,576
LB08046	L. Berkeley National Lab	Calibrating Baryon Acoustic Oscillations for Future Dark Energy Experiments	104,623
LB08047	L. Berkeley National Lab	Integrated Tools in Multiscale Bioimaging	290,009
LB08048	L. Berkeley National Lab	Development of Multi-Modular Assemblies with Reduced Material and Services for Specifications of Future Particle Tracking	206,939
LB09001	L. Berkeley National Lab	Development of Reusable Software Modules for the Analyses of bioSAXS Data	142,983
LB09002	L. Berkeley National Lab	Synthesis and Characterization of Self-Assembled Battery Electrodes	134,943
LB09003	L. Berkeley National Lab	Embedded Engineering Construction Materials, and HVAC Components in Modular Energy Systems Simulations	149,545
LB09004	L. Berkeley National Lab	Measurement of Protein/DNA Binding in vitro and in vivo Using Single Molecule Approaches	221,971

Project	Site name	Project Desc	FY2010 Cost
LB09006	L. Berkeley National Lab	Linking Genomics, Proteomics and Ultrastructural Characterization of Microbial Communities and Their Viruses	170,839
LB09007	L. Berkeley National Lab	Experimental Accelerator R and D Toward a Future Light Source	996,979
LB09008	L. Berkeley National Lab	Engineering Environmental Sensitivity in an Artificial Cell	135,625
LB09009	L. Berkeley National Lab	Development of In Situ Cells for Reactive Spectroscopic and Microscopic Studies	281,794
LB09010	L. Berkeley National Lab	Applications of Hybrid Live Cell Synthetic Devices for Cancer Research	139,866
LB09011	L. Berkeley National Lab	Dynamics of Homogeneous Catalysis Reactions Investigated with Transient Two-Dimensional Infrared Spectroscopy on the Pico- to Microsecond Timescale	128,768
LB09012	L. Berkeley National Lab	Development of Novel Improved Capacitors for Pulse Power Applications	146,511
LB09013	L. Berkeley National Lab	Impact of Climate Change on Soil Water Dynamics in Arid Areas	150,842
LB09014	L. Berkeley National Lab	Probabilistic Optimization of Energy Systems in Buildings	146,765
LB09015	L. Berkeley National Lab	Relating Tissue Residues to Indoor Chemical Sources in a Bayesian Framework Synthesis of Chemistry, Pharmacokinetics, and Biomarkers	146,249
LB09016	L. Berkeley National Lab	SPARKLE: A Fluorescence Energy Transfer (FRET) Methodology for Visualization of Simultaneous and Reversible Interactions	959,362
LB09017	L. Berkeley National Lab	Mixed Ionic and Electronic Transport in Solution-Processed Inorganic Nano-Composites	145,813
LB09018	L. Berkeley National Lab	In Situ Electromechanical Probing in a Transmission Electron Microscope (TEM)	161,264
LB09019	L. Berkeley National Lab	Assessing Epigenomic Approaches for Gene Enhancer Discovery	187,676
LB09020	L. Berkeley National Lab	Self-tuning Building Energy Model	177,972
LB09021	L. Berkeley National Lab	Implementation of an Improved Electron Detection System for nanoARPES	161,877
LB09023	L. Berkeley National Lab	Identifying and Predicting Climate Change Impacts on the Land-Based Components of the Water Cycle	175,383
LB09025	L. Berkeley National Lab	BioEnergy Technologies and Science Integrated Efficiently (BETSIE)	185,750
LB09026	L. Berkeley National Lab	Ultra-sensitive Ge Detectors for Low-background Physics Experiments	317,058
LB09028	L. Berkeley National Lab	Managing Petascale Data With Emerging Computer Architectures	181,560
LB09029	L. Berkeley National Lab	Tuning the Self-Assembly of Membrane Proteins	201,366
LB09030	L. Berkeley National Lab	X-Ray Optical Metrology for Coherence-Preserving Adaptive Optics	177,774
LB09031	L. Berkeley National Lab	Theoretical Study of Nucleon Structure	136,994
LB09032	L. Berkeley National Lab	Biological Methods for Synthesis of Iron-based Nanomaterials	120,118
LB09033	L. Berkeley National Lab	Control of Intraflagellar Transport in Chlamydomonas Cells	185,227
LB09034	L. Berkeley National Lab	X-ray Studies of Charge-Order Dynamics in Complex Materials	184,338
LB09035	L. Berkeley National Lab	Uncovering the Mechanistic Basis for Soil Microbial Community Response to Altered Precipitation Patterns	108,355
LB09036	L. Berkeley National Lab	High Quantum Yield Multi-Alkali Cathodes for psec Pulsed Electron Sources	540,409
LB10001	L. Berkeley National Lab	Enabling HPC Workflows on Clouds	151,046
LB10002	L. Berkeley National Lab	Direct Comb Spectroscopy of Lithium in the Vacuum Ultraviolet and Beyond	142,052
LB10003	L. Berkeley National Lab	Heating Rates of Planar Ion Traps for Quantum Information	164,696
LB10004	L. Berkeley National Lab	Physically-Based Accounting for Resource Use in New Energy Pathways	107,968
LB10005	L. Berkeley National Lab	Bolometric Detectors for the Neutrinoless Double-Beta Decay Experiments	151,525
LB10006	L. Berkeley National Lab	Metafluxomics of a Phosphorus Removing Microbial Community	119,993
LB10007	L. Berkeley National Lab	Parallel Microfluidic Synthesizer: A Fully Automated Chemical Evolution Platform for Novel Materials Discovery	141,908
LB10008	L. Berkeley National Lab	Heavy Element Mass Analysis and Detector Capability	179,151

Project	Site name	Project Desc	FY2010 Cost
LB10009	L. Berkeley National Lab	Long-Range Ordering of Block Copolymers on Patterned Silicon	169,974
LB10010	L. Berkeley National Lab	Predictive High-Throuput Assembly of Synthetic Biological Systems: From Gene Expression to Carbon Sequestration	315,964
LB10011	L. Berkeley National Lab	Structure Solution of Inorganic Materials Using Energy Resolved Laue Microdiffraction	178,939
LB10012	L. Berkeley National Lab	Ion Beam Driven Fission Hybrids	91,312
LB10013	L. Berkeley National Lab	Identification of Genetic Networks Controlling Susceptibility to Radiation-Induced Carcinogenesis	279,851
LB10014	L. Berkeley National Lab	Nanoscale Surveyor	168,657
LB10015	L. Berkeley National Lab	Multifunctional Window Coatings for High-Performance Buildings	281,258
LB10016	L. Berkeley National Lab	Theoretical Studies of Dark Matter Beyond the Standard Model	120,224
LB10017	L. Berkeley National Lab	CO2 as Cushion Gas for Compressed Air Energy Storage in Subsurface Reservoirs	147,063
LB10018	L. Berkeley National Lab	High-Temperature Superconductors for Compact X-ray FELs	128,967
LB10019	L. Berkeley National Lab	Engineering of Drought and Heat Tolerance in Bioenergy Crops	118,998
LB10020	L. Berkeley National Lab	Transforming Data: From Images to Models to Computational Input	148,728
LB10021	L. Berkeley National Lab	Structured Charged Polymers	205,824
LB10022	L. Berkeley National Lab	Biological Carbon Sequestration: Fundamental Research on Biological Carbon Capture and Soil Carbon Stabilization	337,978
LB10023	L. Berkeley National Lab	Ambient Pressure Photoemission Spectroscopy	153,583
LB10024	L. Berkeley National Lab	Linac Driver and Coherent Soft X-ray Sources	673,856
LB10025	L. Berkeley National Lab	Integrated Photonic, Electronic and Spintronic Devices Based on Graphene	141,991
LB10026	L. Berkeley National Lab	Test Monochromator/ Spectrometer Systems with Prototype High Density Gratings for High Resolution X-ray Scattering	180,662
LB10027	L. Berkeley National Lab	Double-Auger Emission of Small Molecules Following Core-Excitation and Ionization	129,114
LB10028	L. Berkeley National Lab	Building Systems for Net Zero Energy Buildings	173,464
LB10029	L. Berkeley National Lab	Computational Techniques for Non-crystalline X-ray Diffraction Imaging	148,403
LB10030	L. Berkeley National Lab	Doping and Surface Properties of Semiconductor Nanowires	260,459
LB10031	L. Berkeley National Lab	Novel Accelerator and Engineering Strategies for Ion Beam Cancer Therapy	94,032
LB10032	L. Berkeley National Lab	Plasma-Assisted High Rate Deposition Concept for Energy Applications	328,735
LB10033	L. Berkeley National Lab	Enhanced Subsurface Fluid Characterization Using Joint Hydrological and Geophysical Imaging	207,985
LB10034	L. Berkeley National Lab	Search for a Permanent Electron Electric Dipole Moment (EDM)	202,970
LB10035	L. Berkeley National Lab	Multinozzle Arrays for Single Cell Metabolomics	188,986
LB10036	L. Berkeley National Lab	Surface-Selective Synthesis of Graphene Nanoribbons on Nanowire Templates	202,470
LB10037	L. Berkeley National Lab	Quantifying f-electron Exchange Coupling in Actinide and Lanthanide Complexes	191,394
LB10038	L. Berkeley National Lab	Syngeneic Mouse Model for Breast Cancer Metastasis and Organ Tropism	180,108
LB10039	L. Berkeley National Lab	Functional Characterization of NUCKS- a Potential Cancer Susceptibility Locus Required for Recombination	179,017
LB10040	L. Berkeley National Lab	Synchrotron-Based Microtomography for Functional Analysis of Normal Tissue and Tumor Molecular Markers, and Their Perturbation by Low-Dose Radiation Exposure	87,941
LB10041	L. Berkeley National Lab	Developing a Fuel-Efficient Cook Stove for Haiti	87,976
LB10042	L. Berkeley National Lab	Advances in Standardized, Scar-less, Sequence-Independent Cloning Methods	120,000
LB10043	L. Berkeley National Lab	Study of History of Global Surface Temperatures	115,802

Project	Site name	Project Desc	FY2010 Cost
LB10044	L. Berkeley National Lab	Toward a US Greenhouse Gas Information System IGHGIS)	51,992
	Total		20,616,736
	Administrative Cost	Paid by Laboratory overhead	
07-ERD-019	L. Livermore National Lab	Detection, Classification, and Estimation of Radioactive Contraband from Uncertain, Low-Count Measurements	282,550
07-ERD-063	L. Livermore National Lab	Storage-Intensive Supercomputing	220,250
07-ERD-064	L. Livermore National Lab	Fossil-Fuel Emission Verification Capability	318,530
08-ERD-001	L. Livermore National Lab	Dynamics of Material Motion and Transformation following Localized Laser-Energy Deposition in Transparent Dielectrics	603,900
08-ERD-002	L. Livermore National Lab	A New Selectable Marker System for Genetic Studies of Select Agent Pathogens	334,780
08-ERD-005	L. Livermore National Lab	Nonequilibrium Electron Dynamics in Warm Dense Matter	166,210
08-ERD-008	L. Livermore National Lab	Studying Reactions of Excited Nuclear States	241,050
08-ERD-014	L. Livermore National Lab	New Algorithms to Scale Domain Decomposition Up to BlueGene Architectures	269,940
08-ERD-016	L. Livermore National Lab	Broadband Heterodyne Infrared Spectrometer: A Path to Quantum Noise-Limited Performance	279,520
08-ERD-017	L. Livermore National Lab	Exploration of Laser-Plasma Interactions for High-Performance Laser-Fusion Targets	338,560
08-ERD-019	L. Livermore National Lab	Innovative Divertors for Future Fusion Devices	180,400
08-ERD-020	L. Livermore National Lab	The Elegant Molecular Syringe: Characterizing the Injectisome of the Yersinia pestis Type III Secretion System	180,120
08-ERD-022	L. Livermore National Lab	Robust Ensemble Classifier Methods for Detection Problems with Unequal and Evolving Error Costs	326,520
08-ERD-023	L. Livermore National Lab	Enhanced Event Extraction from Text Via Error-Driven Aggregation Methodologies	479,390
08-ERD-024	L. Livermore National Lab	High-Temperature Thermal X-Radiation Sources at Short-Pulse Lasers	433,690
08-ERD-025	L. Livermore National Lab	Viability-Based Detection Methods for Pathogens in Complex Environmental Samples	286,350
08-ERD-026	L. Livermore National Lab	Scalable Methods for Discrete-Ordinate Transport Algorithms on Massively Parallel Architectures	432,720
08-ERD-027	L. Livermore National Lab	Advanced Computational and Experimental Analysis of Plasma Equations of State and Transport	219,390
08-ERD-030	L. Livermore National Lab	Rapid Radiochemical Separations for Investigating the Chemistry of the Heaviest Elements	384,570
08-ERD-031	L. Livermore National Lab	Efficient Numerical Algorithms for Vlasov Simulation of Laser-Plasma Interactions	575,190
08-ERD-032	L. Livermore National Lab	Fundamental Mechanisms Driving the Amorphous-to-Crystalline Phase Transformation	228,870
08-ERD-033	L. Livermore National Lab	Strain-Rate Effects on Plasticity and Defects	131,500
08-ERD-034	L. Livermore National Lab	New Physical Mechanisms for Next-Generation Fusion-Laser Dynamic Sensors and Diagnostics	260,910
08-ERD-035	L. Livermore National Lab	Impurity and Alloying Effects on Material Strength from First Principles	324,710
08-ERD-036	L. Livermore National Lab	Understanding Viral Quasispecies Evolution Through Computation and Experiment	390,680
08-ERD-037	L. Livermore National Lab	Important Modes to Drive Protein Molecular-Dynamics Simulations to the Next Conformational Level	95,520
08-ERD-038	L. Livermore National Lab	Do Brittle Metals Change Character Under Extreme Shock Conditions?	320,740

Project	Site name	Project Desc	FY2010 Cost
08-ERD-039	L. Livermore National Lab	Direct Simulation of Dynamic Fracturing during Carbon Storage and Prediction of Potential Storage Failures	219,230
08-ERD-042	L. Livermore National Lab	A Hydrogen-Oxygen-Argon Internal Combustion Engine System: The Mechanical Equivalent of a Fuel Cell	301,130
08-ERD-043	L. Livermore National Lab	Tracing the Shadows of Planetary Systems	659,020
08-ERD-044	L. Livermore National Lab	Point-of-Care Diagnostic for Foot-and-Mouth Disease Virus	101,270
08-ERD-048	L. Livermore National Lab	Analysis in Three Dimensions Plus Time of Plasma Microturbulence Simulations	140,740
08-ERD-049	L. Livermore National Lab	Cryogenic Bolometers for Double Beta-Decay Experiments	152,640
08-ERD-051	L. Livermore National Lab	Cadmium-Zinc-Telluride Sandwich Detectors for Gamma Radiation	340,590
08-ERD-052	L. Livermore National Lab	Partition-of-Unity Finite-Element Method for Large-Scale Quantum Molecular Dynamics on Massively Parallel Computational Platforms	198,670
08-ERD-053	L. Livermore National Lab	High-Resolution Projection Microstereolithography for Advanced Target Fabrication	441,450
08-ERD-054	L. Livermore National Lab	Measurement and Prediction of Laser-Induced Damage in the Presence of Multiple Simultaneous Wavelengths	2,005,620
08-ERD-055	L. Livermore National Lab	Chemical and Structural Modification and Figure Control during Glass Polishing	2,084,450
08-ERD-056	L. Livermore National Lab	Toward More Intrinsically Secure Nuclear Fuel Cycles	243,100
08-ERD-057	L. Livermore National Lab	Physics of Local Reinitiation and Morphological Evolution of Mitigated Sites for Ultraviolet Optics	2,022,700
08-ERD-062	L. Livermore National Lab	Mesoscale Studies of Hydrodynamic Instability Growth in the Presence of Electric and Magnetic Fields	375,780
08-ERD-064	L. Livermore National Lab	Hybridization, Regeneration, and Selective Release of DNA Microarrays	386,620
08-ERD-065	L. Livermore National Lab	Coordinated Analysis of Geographic Indicators for Nuclear-Forensic Route Attribution	312,780
08-ERD-066	L. Livermore National Lab	Nuclear Astrophysics at the National Ignition Facility: Feasibility of Studying the Reactions of the Stars on Earth	110,010
08-ERD-069	L. Livermore National Lab	Study of Kelvin¿Helmholtz Instability in High-Energy-Density Hydrodynamic Processes	182,090
08-ERD-071	L. Livermore National Lab	New Molecular Probes and Catalysts for Bioenergy Research	256,720
08-ERI-002	L. Livermore National Lab	X-Ray Scattering on Compressed Matter	276,380
08-ERI-004	L. Livermore National Lab	Proton Fast Ignition	246,500
08-LW-015	L. Livermore National Lab	Probing the Organization of the Cell Membrane	236,730
08-LW-070	L. Livermore National Lab	Plasma Waveguide for Electron Acceleration	227,810
08-SI-001	L. Livermore National Lab	Fast-Ignition Proof-of-Principle Experiments	1,630,660
08-SI-002	L. Livermore National Lab	The Viral Discovery Platform	1,819,520
08-SI-004	L. Livermore National Lab	Nanomaterials for Fusion Application Targets	2,091,370
09-ERD-002	L. Livermore National Lab	Nanosecond Characterization of Dynamic Void Evolution in Porous Materials	366,680
09-ERD-003	L. Livermore National Lab	Understanding the Surface Properties that Lead to Optical Degradation in High-Fluence, High-Average-Power Optical Materials	885,390
09-ERD-004	L. Livermore National Lab	Improved Spectral Line-Shape Models for Opacity Calculations	296,290
09-ERD-005	L. Livermore National Lab	Multiresolution AdaptMive Monte Carlo for Microstructure Simulations	312,350
09-ERD-009	L. Livermore National Lab	Coupling Advanced Cryo-Electron Microscopy with High-Performance Computing to Resolve Biomolecular Function	650,070
09-ERD-012	L. Livermore National Lab	First-Principles Planetary Science	214,580

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09-ERD-014	L. Livermore National Lab	Quantitative Analysis of Vector Field Topology	359,270
09-ERD-016	L. Livermore National Lab	Imaging X-Ray Line-Shape Diagnostic for Burning Plasmas	344,430
09-ERD-017	L. Livermore National Lab	Rapid Exploitation and Analysis of Documents	296,730
09-ERD-019	L. Livermore National Lab	Adding Validation and Novel Multiphysics Capabilities to the First-Principles Molecular Dynamics Qbox Code	248,510
09-ERD-020	L. Livermore National Lab	How Carbon and Oxygen Can Be Made in Stars: An Ab Initio Approach to Nuclear Reactions	215,710
09-ERD-021	L. Livermore National Lab	Role Discovery in Dynamic Semantic Graphs	453,350
09-ERD-023	L. Livermore National Lab	Ultrafast Nanoscale Dynamic Imaging Using X-Ray Free Electron Lasers	272,250
09-ERD-025	L. Livermore National Lab	Scrape-Off-Layer Flow Studies in Tokamaks	315,580
09-ERD-026	L. Livermore National Lab	Collection of Refractory Debris from the National Ignition Facility for Stewardship-Relevant Measurements	325,990
09-ERD-028	L. Livermore National Lab	Understanding the Initiation of High-Voltage Vacuum Insulator Flashover	360,490
09-ERD-029	L. Livermore National Lab	Enabling Transparent Ceramics Optics and Advanced Armor with Nanostructured Materials Tailored in Three Dimensions	492,880
09-ERD-030	L. Livermore National Lab	Critical Enabling Issues for Burning-Plasma Diagnostics	181,610
09-ERD-032	L. Livermore National Lab	Experimental Determination of Dense Plasma Effects on Bound States in Extreme States of Matter	492,410
09-ERD-034	L. Livermore National Lab	Modern Finite Elements for Lagrangian Hydrodynamics	556,290
09-ERD-036	L. Livermore National Lab	Uses of Ignition at the National Ignition Facility	267,670
09-ERD-037	L. Livermore National Lab	Shock Temperatures from Neutron Resonance Spectroscopy	232,560
09-ERD-038	L. Livermore National Lab	Improving Atmospheric Flow Prediction at Intermediate Scales	286,120
09-ERD-042	L. Livermore National Lab	Arc Initiation of High Explosives	328,730
09-ERD-044	L. Livermore National Lab	Lagrange Multiplier Embedded Mesh Method	265,320
09-ERD-045	L. Livermore National Lab	Optimized Volumetric Scanning for X-Ray Area Sources	316,850
09-ERD-049	L. Livermore National Lab	Magnetorheological Finishing for Large-Aperture High-Fluence Optical Applications	1,207,800
09-ERD-050	L. Livermore National Lab	Characterization of Tritium Uptake and Release by Inertial-Confinement Fusion Reactor Materials	1,120,720
09-ERD-051	L. Livermore National Lab	Methods for Mitigation of Damage to Multilayer Mirrors	888,420
09-ERD-054	L. Livermore National Lab	Flexible and Rapid Therapeutic Countermeasures for Global Biosecurity	1,985,390
09-ERD-057	L. Livermore National Lab	Maskless, Low-Cost, High-Performance Polymer Waveguides	70,520
09-ERI-002	L. Livermore National Lab	Biological Testing of Systems Biology: Validation of Flux-Balance Analysis Predictions	246,770
09-ERI-003	L. Livermore National Lab	Mapping Patterns of Past Drought in California: Late-Holocene Lake Sediments as Model Diagnostics	199,030
09-ERI-004	L. Livermore National Lab	Stardust Science: Nanoscale Analytical Studies of Materials	349,730
09-LW-003	L. Livermore National Lab	Superimposed Plasmonic and Photonic Detection Platform	297,700
09-LW-024	L. Livermore National Lab	Biomolecule-Directed Synthesis of Highly Ordered, Nanostructured Porous Zinc Oxide	269,880
09-LW-030	L. Livermore National Lab	Towards Understanding Higher-Adaptive Systems	281,210
09-LW-036	L. Livermore National Lab	The Role of Dendritic Cells in Tularemia Pathogenesis	290,530
09-LW-044	L. Livermore National Lab	An Atomic Inner-Shell X-Ray Laser Pumped by the Linac Coherent Light Source	278,700
09-LW-061	L. Livermore National Lab	Direct Search for Decay of the Thorium-229 Nuclear Isomer	274,630
09-LW-072	L. Livermore National Lab	Effect of Aging on Chondrocyte Function	337,630

Project	Site name	Project Desc	FY2010 Cost
09-LW-077	L. Livermore National Lab	Versatile Delivery and Immune-Stimulatory Platform for Just-in-Time Vaccine Development	257,620
09-LW-080	L. Livermore National Lab	Investigation of Short-Pulse Laser-Pumped Gamma-Ray Lasers	276,680
09-LW-104	L. Livermore National Lab	Natural Perchlorate in Groundwater: Source, Formation Mechanisms, and Fate	283,720
09-LW-112	L. Livermore National Lab	Antibiotic Heteroresistance in Methicillin-Resistant Staphylococcus Aureus: Microchemostat Studies at the Single-Cell Level	291,100
09-SI-003	L. Livermore National Lab	Radiation-Tolerant Materials	1,989,440
09-SI-004	L. Livermore National Lab	Precision Monoenergetic Gamma-Ray Science for NNSA Missions	5,375,940
09-SI-005	L. Livermore National Lab	Physics and Chemistry of the Interiors of Large Planets: A New Generation of Condensed Matter	3,101,740
09-SI-010	L. Livermore National Lab	From Super-Earths to Nucleosynthesis: Probing Extreme High-Energy-Density States of Matter with X-Rays	1,982,360
09-SI-011	L. Livermore National Lab	The Microphysics of Burning, Hot Dense Radiative Plasmas	2,375,580
09-SI-013	L. Livermore National Lab	Supercomputing-Enabled Transformational Analytics Capability (SETAC)	2,746,530
10-ERD-004	L. Livermore National Lab	Mix at the Atomic Scale	577,420
10-ERD-011	L. Livermore National Lab	An Adaptive, Coupled Regional Climate and Hydrologic Modeling System for Accurate Wind-Power and Water-Resource Simulation	134,630
10-ERD-020	L. Livermore National Lab	Genomics of Cell-Cell Communication: Identification of DNA Sensors in Humans	226,500
10-ERD-021	L. Livermore National Lab	Microbes and Minerals: Imaging Carbon Stabilization	515,170
10-ERD-025	L. Livermore National Lab	Parallel Discrete-Event Simulation of Cyber Attack and Defense Scenarios and Automated Rollback Code Generation	603,730
10-ERD-026	L. Livermore National Lab	High-Gradient Inverse Free-Electron Laser Accelerator	485,470
10-ERD-027	L. Livermore National Lab	CgWind: A Parallel, High-Order Accurate Simulation Tool for Wind Turbines and Wind Farms	502,060
10-ERD-029	L. Livermore National Lab	Modeling and Measuring Quark-Gluon Plasma Shock Waves	222,480
10-ERD-033	L. Livermore National Lab	Unlocking the Universe with High-Performance Computing	454,990
10-ERD-035	L. Livermore National Lab	Design of Novel Catalysts to Capture Carbon Dioxide	735,300
10-ERD-038	L. Livermore National Lab	Discovery and Synthesis of Materials for High-Energy-Density Science	270,130
10-ERD-039	L. Livermore National Lab	Binary Analysis	451,570
10-ERD-040	L. Livermore National Lab	Uncertainty Visualization	378,960
10-ERD-041	L. Livermore National Lab	M3Net: Taxonomy Construction and Topic Mapping for Multimedia Message Manager Traffic	499,280
10-ERD-043	L. Livermore National Lab	Embedded Sensors for Monitoring Complex Systems	629,490
10-ERD-044	L. Livermore National Lab	An Intense Laser-Based Positron Source	325,720
10-ERD-053	L. Livermore National Lab	Direct Observation of Phase Transformations and Twinning under Extreme Conditions: In Situ Measurements at the Crystal Scale	507,150
10-ERD-054	L. Livermore National Lab	Eigensolvers for Large-Scale Graph Problems	630,060
10-ERD-055	L. Livermore National Lab	Prediction of Underground Coal Gasification Cavity Growth, Coal Conversion, and Geophysical Signatures	642,990
10-ERD-056	L. Livermore National Lab	Material-Coolant Interactions in Fusion Reactors	470,550
10-ERD-057	L. Livermore National Lab	Multiscale Polymer Flows and Drag Reduction	234,490
10-ERD-058	L. Livermore National Lab	Fundamental Research in Advanced Quantum Simulation Algorithms	293,560
10-ERD-059	L. Livermore National Lab	Thermodynamic and Kinetic Modeling of Advanced Nuclear Fuels	866,370
10-ERD-060	L. Livermore National Lab	Enhancing Climate Model Diagnosis and Intercomparison	249,340

Project	Site name	Project Desc	FY2010 Cost
10-FS-001	L. Livermore National Lab	Novel Separation of Actinides	124,890
10-FS-002	L. Livermore National Lab	Feasibility of a Hybrid Rubidium Resonance and Exciplex Pump Laser	68,620
10-FS-003	L. Livermore National Lab	Passive, Standoff Detector of High-Density Masses with a Gravity Gradiometer Based on Atom Interferometry	123,550
10-FS-004	L. Livermore National Lab	Feasibility of Diode-Laser Array as Surrogate Source for Laser Lethality Studies	124,680
10-FS-005	L. Livermore National Lab	Suppressing Counterflow Turbulence with a Shear-Thickening Agent	51,580
10-LW-002	L. Livermore National Lab	Development of High Performance Lead-Free Solders for Microelectronics and Semiconductor Applications	70,350
10-LW-020	L. Livermore National Lab	Understanding the Role of Virus Evolution in Interspecies Transmission Events	276,550
10-LW-033	L. Livermore National Lab	Establishing Cancer Stem Cell Longevity and Metastatic Potential	248,810
10-LW-041	L. Livermore National Lab	Radiation Biodosimetry Using Loop-Mediated Isothermal Amplification	281,170
10-LW-045	L. Livermore National Lab	In Situ Spectroscopy and Microscopy for the Study of Advanced Materials for Energy Storage	251,060
10-ORPH-001	L. Livermore National Lab	Orphaned Accounts Total	122,890
10-SI-006	L. Livermore National Lab	Science and Technology of Unconventional Fiber Waveguides for Emerging Laser Missions	1,348,070
10-SI-007	L. Livermore National Lab	Real-Time Space Situational Awareness	2,264,290
10-SI-009	L. Livermore National Lab	Dynamic Chamber Processes for LIFE: Simulations and Experiments on Beam Propagation and Chamber Clearing	1,797,420
10-SI-010	L. Livermore National Lab	Compact, Efficient Lasers for Inertial Fusion-Fission Energy	1,883,050
10-SI-013	L. Livermore National Lab	The Advance of Uncertainty Quantification Science	1,936,190
10-SI-014	L. Livermore National Lab	ExaCT: Exascale Computing Technologies	1,695,370
10-SI-015	L. Livermore National Lab	Advanced Rare Event Detectors for Nuclear Science and Nuclear Security	2,003,540
10-SI-016	L. Livermore National Lab	Nuclear Forensics: An Integrated Approach for Rapid Response	1,637,280
	Total		88,704,390
	Administrative Cost	Paid by Laboratory overhead	
6001001	Nat'l Renewable Energy Lab	LDRD Program Management	170,846
6001099	Nat'l Renewable Energy Lab	LDRD Peer Review costs	545
6270801	Nat'l Renewable Energy Lab	Oriented Nanotube Arrays for Advanced Lithium-Ion Batteries	240,839
6270802	Nat'l Renewable Energy Lab	Tailoring Carbon Nanotube and Hydrogenase Bio-Hybrids for Design of Novel H2 Electrodes	188,192
6270803	Nat'l Renewable Energy Lab	Catalyst Improvement for Solar Biohydrogen Production	199,638
6270804	Nat'l Renewable Energy Lab	Understanding Plant Cell Wall Deconstruction Process in Biomass Decaying Community Using Proteomics and Bioimaging Approaches	110,946
6270901	Nat'l Renewable Energy Lab	Biodiesel from Cyanobacteria	185,609
6270902	Nat'l Renewable Energy Lab	A Fundamental Investigation of the Role of Triplet States in Organic Photovoltaic Materials	249,064
6271001	Nat'l Renewable Energy Lab	Mapping Local Photocurrent in Excitonic Solar Cells With Nanometer Resolution	151,282
6501101	Nat'l Renewable Energy Lab	Wind Turbine Array Fluid Dynamic and Aero-Elastic Simulations	34,472
6510701	Nat'l Renewable Energy Lab	Consolidated Bioprocessing (CBP) of Cellulosic Biomass: Physiologically Paired Microbial Hosts and Cellulase Enzymes	143,942
6510801	Nat'l Renewable Energy Lab	Obtaining Cell Wall Composition of a Single Cell: Integration of Pulsed Sample Introduction with High Sensitivity Laser Ionization Mass Spectrometry	93,693

Project	Site name	Project Desc	FY2010 Cost
6510802	Nat'l Renewable Energy Lab	Nanoscale Materials for Thermal Storage	223,040
6510803	Nat'l Renewable Energy Lab	Developing Next Generation Biobutanol-Producing Microorganisms Using Systems Biology	153,566
6510804	Nat'l Renewable Energy Lab	Meso-Scale Computational Modeling of Polysaccharides in Plant Cell Walls	182,860
6510805	Nat'l Renewable Energy Lab	Development of a Comprehensive High-Throughput Technique for Assessing Lipid Production in Algae	106,681
6510901	Nat'l Renewable Energy Lab	Use of Digital Gene Expression: Tag Profiling for High Throughput Transcriptomics in Microbial Strains Involved in Advanced Biofuel Production	163,345
6511001	Nat'l Renewable Energy Lab	Regulated Enzymatic Disruption of Algal Cell Walls for Enhanced Lipid Recovery	134,780
6511002	Nat'l Renewable Energy Lab	Identification of Novel Promoters to Facilitate Genetic Engineering of Algae for Enhanced Oil Production	90,272
6511003	Nat'l Renewable Energy Lab	Comprehensive Pyrolysis Oil and Pyrolysis Oil Based Fuels Characterization Using 2-Dimensional GC/GC/MS	164,455
6520801	Nat'l Renewable Energy Lab	Semiconducting and Metallic Nanowire Networks for Transparent Electrical Contacts	189,834
6520802	Nat'l Renewable Energy Lab	Integrated Rectenna Devices for Solar Energy Conversion	154,301
6521001	Nat'l Renewable Energy Lab	Searching for Low-Cost, Stable and Multiple Electron Transfer Electrodes for Li-Ion Batteries by a Combination of Theoretical Study, Synthesis, and Material Characterization	299,856
6521002	Nat'l Renewable Energy Lab	Advanced Thermal Materials for CSP	380,010
6521003	Nat'l Renewable Energy Lab	A Fundamental Study of Novel, Incoherent Light, Upconversion Materials for Application in Third-Generation Photoconversion Devices	206,983
6540801	Nat'l Renewable Energy Lab	Development of Vehicle to Grid (V2G) Systems to Support Renewable Technologies	61,413
6540901	Nat'l Renewable Energy Lab	Nano-Scale Control of Thermal Transport in Novel Materials/Nanostructures	146,210
6541001	Nat'l Renewable Energy Lab	Improving Performance of Lithium-Ion Batteries Using Advanced Coating Technologies	241,025
6551001	Nat'l Renewable Energy Lab	Smart-Grid Modeling and Hardware-in-Loop Validation	117,904
6560801	Nat'l Renewable Energy Lab	Solid Oxide Fuel Cells for Combined Tar Reforming and Electricity Production	121,646
6560901	Nat'l Renewable Energy Lab	Novel Support and Innovative Structured, Low Loading Catalyst Layer for PEM Fuel Cells	191,985
6590802	Nat'l Renewable Energy Lab	Development of Novel Thin-Film Solar Energy Conversion Materials	147,013
6590901	Nat'l Renewable Energy Lab	Solid-State Proton Conductor for a Hydrogen Battery	153,214
6590902	Nat'l Renewable Energy Lab	Simulation Strategies for Organic, Excitonic and Third-Generation Solar Cells	165,888
6591001	Nat'l Renewable Energy Lab	Development of Short Wavelength GaInP for Solid-State Lighting Applications	310,177
6591002	Nat'l Renewable Energy Lab	Design Graphene Oxide Based Low Band Gap Absorber for OPV Applications	151,519
6670901	Nat'l Renewable Energy Lab	Analytical Science for Geospatial and Temporal Variability in Renewable Energy and Energy Efficiency	166,843
06RF0901	Nat'l Renewable Energy Lab	Group IV Quantum Dot Synthesis	111,089
06RF0907	Nat'l Renewable Energy Lab	Theoretical Approach towards the Understanding of the Electronic Structure of Mixed Metal Oxides for Photoelectrochemical Water Splitting	103,774
06RF0908	Nat'l Renewable Energy Lab	Development of New Theoretical Method for Searching Optimized Materials for Solar Conversion	111,259
06RF1001	Nat'l Renewable Energy Lab	Development of a Novel Cyanobacterial Biofuels	358,500

Project	Site name	Project Desc	FY2010 Cost
06RF1002	Nat'l Renewable Energy Lab	Understanding the Properties of Intrinsic and Photo-Induced Charges in Molecular-Based Materials: Advancing Excitonic Solar Cells	282,281
06RF1003	Nat'l Renewable Energy Lab	Targeted Development of Organic Materials for Organic-Inorganic Hybrid Photovoltaics	155,751
06RF1004	Nat'l Renewable Energy Lab	Solexa Studies	32,515
	Total		7,349,057
	Administrative Cost	Paid by Laboratory overhead	
H1701040	Nevada Nat'l Security Site	Organophosphate Detection Using EPM Sensors	162,710
H1701049	Nevada Nat'l Security Site	Debye-Waller Dynamic Temperature Measurements	397
H1701090	Nevada Nat'l Security Site	Debye-Waller Dynamic Temperature Diagnostic	214,200
H1701119	Nevada Nat'l Security Site	Picosecond Time-resolved Electron Diffraction of Phase Transitions	27,426
H1701138	Nevada Nat'l Security Site	Optimized Scintillator Geometry	192
H1701190	Nevada Nat'l Security Site	Single Shot Detection of Phase Transitions Using THz Spectroscopy	227,642
H1702019	Nevada Nat'l Security Site	Dark Field Radiography	130
H1702060	Nevada Nat'l Security Site	SPECTR-Spectroscopic Proof of Concealed Explosives by THz Spectrscopy	260,654
H1702080	Nevada Nat'l Security Site	Radiation Hardened Wide-gap Semiconductor Detectors	475,819
H1702109	Nevada Nat'l Security Site	THz DPF Plasma Probe	2,325
H1702180	Nevada Nat'l Security Site	Dark Field, Phase Contrast Radiography	196,604
H1702220	Nevada Nat'l Security Site	Thermal Neutron Imager	118,491
H1703089	Nevada Nat'l Security Site	High Explosive Pulsed Power DPF	4,409
H1703090	Nevada Nat'l Security Site	Advanced PDV Techniques: Evaluation of Photonic Technologies	406,215
H1704030	Nevada Nat'l Security Site	Straw Detector-Dual Fission Meter for Gamma-Neutron Multiplicity Measurement	199,400
H1704040	Nevada Nat'l Security Site	Muon Counting as a Gauge of Cosmic-Ray Activity & Background	165,382
H1704080	Nevada Nat'l Security Site	Laser Polar Nepholometer for Aerosol Studies	245,018
H1704119	Nevada Nat'l Security Site	CeBr3 Room Temperature High Resolution Detector	2,719
H1704249	Nevada Nat'l Security Site	Portable Tagged Neutron Triple Coincidence Counter System	9
H1704339	Nevada Nat'l Security Site	Wavelet Adaptive Learner	4,017
H1704409	Nevada Nat'l Security Site	Interpreting Rad Measurements using Adjoint Transport	564
H1705040	Nevada Nat'l Security Site	Improved Understanding of Windows for Optical Shockwave Diagnostics	282,782
H1705060	Nevada Nat'l Security Site	Fourier Transform Pyrometry	271,820
H1705069	Nevada Nat'l Security Site	Radiative Decay Engineering for Improved Scintillators	62,711
H1705070	Nevada Nat'l Security Site	Miniaturizing Time-of-Flight Mass Spectrometers	163,460
H1705090	Nevada Nat'l Security Site	Coded Apeture Thermal Neutron Imaging/Directional Detector	230,673
H1705109	Nevada Nat'l Security Site	Differential Mobility Spectrometry Mass Spectrometry	5,995
H1705110	Nevada Nat'l Security Site	Multi-layer Hybrid Colloidal Quantum Dot AlGaN-based Photodetectors	214,304
H1705160	Nevada Nat'l Security Site	Microcantilever Enabled Neutron Detector	281,537
H1705179	Nevada Nat'l Security Site	Hybrid Colloidal Quantum Dot AlGaN-based Photodetectors	13,362
H1705189	Nevada Nat'l Security Site	Fourier Transform Spectrometer	520
H1705260	Nevada Nat'l Security Site	Passive 802.11b Geo-location using a 4-element Antenna Array	300,597
H1705380	Nevada Nat'l Security Site	Density Functional Theory Computations for Uranium Chemistry	132,278
H1705460	Nevada Nat'l Security Site	Enhanced Methods of Object Recognition and Classification within a Scene	274,598
H1705470	Nevada Nat'l Security Site	Search Device	315,373
H1706030	Nevada Nat'l Security Site	Nanostructured Lanthanum Halides and CeBr3 for Nuclear Radiation Detection	291,289

Project	Site name	Project Desc	FY2010 Cost
H1706070	Nevada Nat'l Security Site	Measurement of Tagged Neutron Fission Anisotropy	173,209
H1706100	Nevada Nat'l Security Site	SNM End-Of-Enrichment (EOE) Time and Constituency Reconstructions (Phase II)	246,395
H1706330	Nevada Nat'l Security Site	Deterministic Transport for Quantificaiton of AMS Data Products	110,250
H170FS10	Nevada Nat'l Security Site	Non-invasive electron beam monitor study	21,192
H170FS20	Nevada Nat'l Security Site	Active Interrogation Study with DPF	34,419
H170FS30	Nevada Nat'l Security Site	VOC Detection from Biofermentation Processes	55,043
H170FS40	Nevada Nat'l Security Site	Nuclear Fuel Cycle Effluent Ontology	11,516
	Total		6,207,646
	Administrative Cost		654,021
32102257	Oak Ridge National Lab	An All-Optical Plasmonic Pump for Integrated Applications	3,060
32102265	Oak Ridge National Lab	Hydration-Driven Processes in Bioenergy: Testing a Novel, Neutron-Scattering Approach	53,795
32102268	Oak Ridge National Lab	Tip-Enhanced Optical Assembly of Plasmonic Nanostructure	83
32102274	Oak Ridge National Lab	Surface Interactions of Radioactive Particles and Radioactivity Effects on Transport and Deposition	9,196
32102276	Oak Ridge National Lab	The Graphics Processing Unit—Enhanced Computer for Large-Scale Text Mining	162
32102277	Oak Ridge National Lab	Development of a Microfluidic Device to Mimic Vasculature for Studying the Mechanism of Tumor Metastasis	1,362
32102284	Oak Ridge National Lab	Fabrication of Single-Crystal Thin Films: The Missing Link in Understanding High-Temperature Superconductivity in the Iron Pnictides	375
32102285	Oak Ridge National Lab	Neutron Scattering Characterization of Sol-Gel Drug Delivery Systems	24,906
32102290	Oak Ridge National Lab	Nanoporous Inorganic Membranes for High-Efficiency Organic Separations	69,778
32102292	Oak Ridge National Lab	Advanced Variance Reduction Methods for Active Interrogation Modeling	132,760
32102293	Oak Ridge National Lab	Whole-Community Proteomic Characterization of Synthetic Human Gut Microbiomes in Gnotobiotic Mice	43,933
32102295	Oak Ridge National Lab	Development of Computational Methods for Neurobiological Imaging Research	62,520
32102298	Oak Ridge National Lab	Study of Radio Frequency Critical Magnetic Fields of Superconducting Materials using Microsecond-Long Pulses	52,770
32102299	Oak Ridge National Lab	An Ionic Liquids-Based Ion Detector	64,920
32102300	Oak Ridge National Lab	Remote Microfluidic Platform using Smart Materials and Structures: A Diagnostic and Interventional Tool for Critical Structural Anomalies during Fetal Development	72,583
32102304	Oak Ridge National Lab	Dual Waveband Passive Longwave Infrared (LWIR) Uncooled Imager	102,871
32102306	Oak Ridge National Lab	Development of a Machinable BN-SiC Ceramic Composite Compatible with High-Temperature Molten Fluoride Salts	43,083
32102307	Oak Ridge National Lab	DNA Separation Using Electrophoretic Traps	5,676
32102308	Oak Ridge National Lab	Investigate the Feasibility of Increasing the Thermal Conductivity of UO2 through the Addition of High Thermal Conducting Material in Order to Improve the Performance	134,855
32102309	Oak Ridge National Lab	Nanoparticle-Hydrogel Sensors for Trace Detection of Explosives in Groundwater	165,194
32102310	Oak Ridge National Lab	A Nonlinear Plasmonic Nano-Circuit for Data Communications	129,229
32102311	Oak Ridge National Lab	Rapid Bidirectional Cantilever-based Anemometer for Engine Intake and Exhaust Gas Recirculation Flow and Mixing Characterization	25,814
32102312	Oak Ridge National Lab	Flaw Detection in Nuclear Fuel Pins using Ultrasonic Torsional Guided Waves	28,064

Project	Site name	Project Desc	FY2010 Cost
32102313	Oak Ridge National Lab	Controlling the Catalytic Properties of Metal Films in the Quantum Regime	182,939
32102314	Oak Ridge National Lab	Development of Real-Time Optimization Methods for Neutron Scattering Experiments a?? Where to Measure and When to Stop	198,605
32102315	Oak Ridge National Lab	Rapid Functional Recognition Imaging in Scanning Probe Microscopy	176,120
32102316	Oak Ridge National Lab	Bioelectrochemical Petri-Plates for Isolation of Novel Electrogenic Microorganisms	27,281
32102317	Oak Ridge National Lab	Testing Nonthermal Plasma as CWA Decontamination Method	26,917
32102318	Oak Ridge National Lab	Reversible Electrostatic Carrier Doping by Ferroelectrics for High On/Off Ratio Field Effect Switches	167,339
32102319	Oak Ridge National Lab	Liquid-Medium Position-Sensitive Thermal-Neutron Ionization Chamber	109,037
32102320	Oak Ridge National Lab	Solar Wind Heavy Ion Sputtering of Lunar Regolith	112,954
32102321	Oak Ridge National Lab	Nanomechanical Oscillators for Ultra Sensitive Electric and Electromagnetic Field Detection	182,541
32102322	Oak Ridge National Lab	Parallelization In Time of Numerical Simulations of Plasma Turbulence: A New Avenue Towards Enabling Future First-Principle Modeling of Fusion Plasmas	174,996
32102323	Oak Ridge National Lab	Hydrogel-Encapsulated Solids for In Vitro Contaminant Availability Testing During Ingestion By Large Vertebrates	172,187
32102324	Oak Ridge National Lab	Spin Excitations and Multiferroic State of Doped CuFeO2	119,504
32102325	Oak Ridge National Lab	Multi-Modal Biometric Recognition of Non-Cooperative Subjects at a Distance	94,729
32102326	Oak Ridge National Lab	PAMAM Dendrimers with Regularly Alternating Functionalization as Potential Carriers for Imaging and Therapeutic Agents for Biomedical Applications	140,226
32102327	Oak Ridge National Lab	High Throughput Synthesis and Chemical Modification of Graphene Materials for Supercapacitors	152,981
32102328	Oak Ridge National Lab	A Next Generation 3D Imaging System for Ballistics Forensics Identification	189,846
32102329	Oak Ridge National Lab	Vertically-Aligned Cu-Si Core-Shell Nanowire Array as a High-Performance Anode Material for Energy Storage	102,975
32102330	Oak Ridge National Lab	Synthesis of High Performance Lignin-Derived Bio-Thermoplastics	166,661
32102331	Oak Ridge National Lab	Identification and Rapid Screening of New and Unique Plant Sources for Biofuels	29,946
32102332	Oak Ridge National Lab	A Resonant Based Grave Detector	27,845
32102333	Oak Ridge National Lab	Fabrication of Ultrathin Graphite/Graphene Films	20,261
32102334	Oak Ridge National Lab	Developing mRNA-Based Multiplex PCR Assays to Detect Viable Salmonella in Food	28,518
32102335	Oak Ridge National Lab	Modeling of the Plasma-Material Interface	78,094
32102336	Oak Ridge National Lab	Plasmonic Effects for Improved Photocarrier Generation in Thin Film Solar Energy Materials	92,823
32102337	Oak Ridge National Lab	Qualitative System Identification for Tumor Modeling: Knowledge Discovery from Observations of In Vivo Tumors	25,206
32102338	Oak Ridge National Lab	Can Neutrons Do It? Probing Performance of Li-Ion Batteries in-situ	83,560
32102339	Oak Ridge National Lab	Computational Simulation of Catalytic Biomass Pyrolysis	98,109
32102340	Oak Ridge National Lab	High-Efficiency and Low-Cost Photovoltaic Cell Wafers via Plasma-Arc Lamp Processing of High Purity Silicon Powder	97,116
32102341	Oak Ridge National Lab	Electrolytic Hydrogen Production: A New Materials and Structural Approach	98,640
32102342	Oak Ridge National Lab	Irradiation Effects in the Graphene-Based Electronics	8,525
32102343	Oak Ridge National Lab	Probing Photovoltaic Processes at the Single Interface Level	39,905

Project	Site name	Project Desc	FY2010 Cost
32102344	Oak Ridge National Lab	Novel Standoff Sensing Method for Explosives with Rydberg State Spectroscopy and Radar Detection	5,925
32102345	Oak Ridge National Lab	Neutron Imaging for the Determination of Tumor Margins	55,706
32102346	Oak Ridge National Lab	White Light Produced by Scalable Biosynthesized Zinc-Gallate Mixture	15,754
32102347	Oak Ridge National Lab	Nuclear Materials FTIR (NMFTIR)	22,625
32102348	Oak Ridge National Lab	Thwarting Online Deception and Phishing with Honeypots and DNS Analysis	44,600
32102349	Oak Ridge National Lab	Drag Reduction with Superhydrophobic Surfaces	42,437
32102350	Oak Ridge National Lab	Synthesis of Ultrastrong Three Dimensional Networks from sp2 Carbon Using Low-Energy Molecular Transformation	33,954
32102351	Oak Ridge National Lab	Using Small Angle Neutron Scattering (SANS) to Determine Gas Hydrate Pore-Scale Distribution	81,077
32102352	Oak Ridge National Lab	Quantum Dots: Potential Eco-friendly Light Harvesters for Solar Cells	28,135
32102353	Oak Ridge National Lab	Air Stable Fe-C Core-Shell Nanocomposite for Degradation of Chlorinated Solvents	20,102
32102354	Oak Ridge National Lab	Non-Destructive Biofuel Initiative	40,553
32102356	Oak Ridge National Lab	Novel Gas Scintillation Counters For Neutron Detection	23,912
32112229	Oak Ridge National Lab	Neutron Scattering Study of Magnetic and Spin Dynamic Behavior in Amine-Stabilized Transition Metal and Transition Metal Oxide Nanoparticles	55,789
32112233	Oak Ridge National Lab	Pushing the Limits: High-Impact Neutron Protein Crystallography	195,943
32112238	Oak Ridge National Lab	Neutron Structural Virology	59,241
32112249	Oak Ridge National Lab	Supra-Macromolecular Assembly of Artificial Photoconversion Units	49,706
32112250	Oak Ridge National Lab	Inelastic Neutron Scattering from Magnetic Heterostructures	69,826
32112251	Oak Ridge National Lab	Synthesis, Assembly and Nanoscale Characterization of Confined, Conjugated and Charged Polymers for Advanced Energy Systems	55,619
32112252	Oak Ridge National Lab	A Knowledge Discovery Framework for America¿s Transportation System	48,039
32112257	Oak Ridge National Lab	An Experimental, Theoretical, and Molecular-Modeling Approach to Characterize the Structure and Dynamics of Charged PAMAM Dendrimers in Solution	3,155
32112258	Oak Ridge National Lab	Carbon Drivers of the Microbe-Switchgrass Rhizosphere Interface	15,019
32112259	Oak Ridge National Lab	Mapping the Protein Structure-Function-Dynamics Landscape	53,204
32112266	Oak Ridge National Lab	Investigating the Role of Physical Interactions and Block Sequence Tailoring on Macromolecular Self-Assembly through Micellar Systems	99,182
32112267	Oak Ridge National Lab	Materials Behavior Underlying the Electrochemical Performance of Advanced Batteries	290,926
32112268	Oak Ridge National Lab	Attoliter Droplets On-Demand in Nanochannels: New Opportunities for Investigating Chemical Reactivity and Catalysis in Nanoscale Reactors	154,537
32112269	Oak Ridge National Lab	Controlled Hierarchical Self-Assembly of Robust Organic Architectures	299,257
32112270	Oak Ridge National Lab	Next-Generation Computational System for Biological Annotation	305,536
32112271	Oak Ridge National Lab	Evolution and Optimization of the Biofuel Supply Chain	289,608
32112272	Oak Ridge National Lab	Development of Novel Biocatalysts for the Production of Fuels and Chemicals from Synthesis Gas	351,739
32112273	Oak Ridge National Lab	Development of Cermet High-Level Waste Forms	457,683
32112274	Oak Ridge National Lab	A Systems Biology Approach to Study Metabolic and Energetic Interdependencies in the Ignicoccus-Nanoarchaeum System	298,851
32112275	Oak Ridge National Lab	Investigation of Molten Salt Thermal Performance in Pebble Beds Using Unique Heating Techniques	491,460

Project	Site name	Project Desc	FY2010 Cost
32112277	Oak Ridge National Lab	Spatiotemporal Data Mining Framework for Monitoring Biomass at Regional and Global Scales	327,768
32112278	Oak Ridge National Lab	Developing a Systems Biology Approach for Linking Genetic and Environmental Constraints to Primary Productivity in Model and Nonmodel Species	306,651
32112279	Oak Ridge National Lab	Liquid Membrane Facilitated Solvent Extraction for Americium Separation from Spent Nuclear Fuel	348,029
32112280	Oak Ridge National Lab	Mapping Energy Transformations Pathways and Dissipation on the Nanoscale	146,664
32112281	Oak Ridge National Lab	Interfacial Reactions of Metal-Fluid Systems at Extreme Conditions	310,848
32112283	Oak Ridge National Lab	New Density Functionals for Ab Initio Calculations Derived from Many-Body Theory	318,749
32112284	Oak Ridge National Lab	Variable Valve Actuation to Enable Highly Efficient Engines	355,954
32112286	Oak Ridge National Lab	Design of Evanescent-Wave Power Transfer for Parked and Moving Hybrid Electric Vehicles	328,806
32112287	Oak Ridge National Lab	Uncertainty Assessment and Reduction for Climate Extremes and Climate Change Impacts	312,340
32112288	Oak Ridge National Lab	Multi-Photon Entangled States for Quantum Information Science	322,337
32112289	Oak Ridge National Lab	Integrated Navigation System for GPS-Denied Environments	299,044
32112290	Oak Ridge National Lab	Decadal Prediction of the Earth System after Major Volcanic Eruptions	165,826
32112291	Oak Ridge National Lab	Prognostic Land-Use and Land-Cover Change for a Coupled Climate-Biogeochemistry Model.	352,103
32112293	Oak Ridge National Lab	Fundamental Neutron Scattering Studies of the Molecular Mobility and Interactions between Natural Porous Media and Greenhouse Gases	258,763
32112294	Oak Ridge National Lab	Neutron Scattering and Osmotic Stress to Study Intrinsically Disordered Proteins	333,058
32112295	Oak Ridge National Lab	A Study of Real-Space Neutron Scattering Methods	58,561
32112296	Oak Ridge National Lab	Distributed Computational Intelligence for Active Response to Cyber-Threat	316,043
32112297	Oak Ridge National Lab	Structure and Structure Evolution in Amorphous Materials: Fundamental Understanding of Materials Behaviors Far from Equilibrium	348,874
32112298	Oak Ridge National Lab	Data Analytics for Medicine using Semi-Supervised Learning (DAMSEL)	274,808
32112299	Oak Ridge National Lab	A Hybrid Continuous/Discontinuous Galerkin Formulation for Next-Generation Multiphysics Computational Fluid Dynamics Solvers	250,063
32112300	Oak Ridge National Lab	MPI-3: Programming Model Support for Ultrascale Computer Systems	217,486
32112301	Oak Ridge National Lab	Computer Design and Predictive Simulation of High-Capacity, Cyclable, and Versatile Nanoporous Supercapacitors for Energy Storage Applications	339,291
32112302	Oak Ridge National Lab	Inferring and Predicting the Social Dynamics of Groups via Psycho-Textual and Communications Flow Analysis	272,030
32112303	Oak Ridge National Lab	High-Throughput Computational Screening Approach for Systems Medicine	299,605
32112304	Oak Ridge National Lab	Denovo: The Next-Generation, High-Performance Computing Solver for Multiscale Nuclear Energy Transport	299,907
32112305	Oak Ridge National Lab	Active Control of Surface Plasmonics with Ferroelectricity	382,879
32112306	Oak Ridge National Lab	Protein Dynamics: Neutron Scattering Methodological Development	173,254
32112308	Oak Ridge National Lab	Identification of New Super-Heavy Element Z=117 using HFIR-Produced 249Bk Target Material and an Intense 48Ca Beam at Dubna	70,994
32112309	Oak Ridge National Lab	Membrane-Based Energy Efficient Integrated Separation Processes and Systems for the Production of Biofuels	315,949

Project	Site name	Project Desc	FY2010 Cost
32112310	Oak Ridge National Lab	Development of a High Magnetic Field Helicon Plasma Source for Fusion Energy Materials and Component Tests	355,494
32112311	Oak Ridge National Lab	Mitigation of Atmospheric CO2 through Management of Woody Biomass	128,957
32112312	Oak Ridge National Lab	Rapid Radiochemistry Applications in Nuclear Forensics	195,250
32112313	Oak Ridge National Lab	Understanding Microstructure-Mechanics Relationships of Advanced Structural Materials using High-Performance Computational Modeling and In-Situ Time-Resolved Neutron Diffract	174,879
32112315	Oak Ridge National Lab	Standoff Detection and Imaging of Chemicals	147,579
32112316	Oak Ridge National Lab	Biological Signature Identification and Threat Evaluation System (BioSITES)	300,397
32112317	Oak Ridge National Lab	The Search for Common Themes in Unconventional Superconductivity: Spin Excitations in Organic Superconductors	299,713
32112318	Oak Ridge National Lab	In-situ Neutron scattering studies of Fuel Cell materials	298,224
32112319	Oak Ridge National Lab	Neutron Imaging of Fluids Within Plant-Soil-Groundwater Systems	185,138
32112320	Oak Ridge National Lab	Asynchronous In-Situ Neutron Scattering Measurement of <10-¿s Transient Phenomena at Spallation Neutron Source	182,787
32112321	Oak Ridge National Lab	Low Cost Materials & Manufacturing of CIGS Thin Film Solar Cells	379,533
32112322	Oak Ridge National Lab	New Multinary Materials for Solar Energy Utilization	351,647
32112323	Oak Ridge National Lab	Multiphase Self-Organized Interfaces for Polymer Photovoltaic Technologies	631,261
32112324	Oak Ridge National Lab	Novel Nanostructured Photovoltaic Solar Cells	347,647
32112325	Oak Ridge National Lab	MEMS based pyroelectric thermal energy scavengers and coolers	327,335
32112326	Oak Ridge National Lab	Highly Efficient Refrigeration Systems Based on Advanced Magnetocaloric Materials	415,359
32112327	Oak Ridge National Lab	Plasma Heating to Enable Fusion Energy Plasma Material Interface Research	349,897
32112328	Oak Ridge National Lab	Revolutionary Radiation Transport for Next-Generation Predictive Multi-Physics Modeling and Simulation	347,265
32112329	Oak Ridge National Lab	Engineered Chemical Nanomanufacturing of Quantum Dot Nanocrystals -- Meeting the Energy Technology Demands	333,562
32112330	Oak Ridge National Lab	Addressing fundamental challenges in modeling the recrystallization of metallic polycrystals through in-situ neutron diffraction studies	247,629
32112332	Oak Ridge National Lab	Enabling plant systems biology investigations for carbon cycling and biosequestration research	261,252
32112333	Oak Ridge National Lab	Catalytic Conversion of Lignin Feedstocks for Bioenergy Applications	198,862
32112335	Oak Ridge National Lab	DRTI: Data-Integration and Runtime Infrastructures for Discrete Event Execution at Peta-Scale and Beyond	350,518
32112336	Oak Ridge National Lab	Wavelength-Division Multiplexed Quantum Communication Network	313,645
32112337	Oak Ridge National Lab	Massively Parallel Algorithms for Scalable Exascale Data Analysis	342,993
32112338	Oak Ridge National Lab	The Eastern U.S. as a test-bed for Smart Grid technologies: a virtual power system enabled by ultra-scale computing	297,463
32112339	Oak Ridge National Lab	Cyber Defensive Countermeasures	296,636
32112340	Oak Ridge National Lab	Computational Biology Toolbox for Ultrascale Computing	299,505
32112341	Oak Ridge National Lab	Soft-Error Resilience for Future-Generation High-Performance Computing Systems	325,000
32112342	Oak Ridge National Lab	Evaluating the Role of Cloud Computing for Scientific Discovery	299,262
32112343	Oak Ridge National Lab	Scalable, fully implicit algorithms for first-principles kinetic simulations at the ultrascale	274,894

Project	Site name	Project Desc	FY2010 Cost
32112344	Oak Ridge National Lab	Novel Zeolitic Carbon Support for Catalytic Bioethanol Production	322,163
32112346	Oak Ridge National Lab	Climate Change Impacts On Energy Infrastructure	363,580
32112347	Oak Ridge National Lab	Enhancing Climate Impact Integrated Assessment for Water Through Climate Informatics	283,568
32112348	Oak Ridge National Lab	Decision Support for Secure and Sustainable Bioenergy System	287,647
32112349	Oak Ridge National Lab	Tough electrolytes for batteries ¿ Composites inspired by nature	525,465
32112350	Oak Ridge National Lab	Development and Verification of Multi-Scale, Multi-Physics Models to Enable the Design of Safe Rechargeable Batteries	387,126
32112351	Oak Ridge National Lab	Achieving Rechargeable Li-Air Batteries through Metal Oxide Electrocatalysts	484,226
32112352	Oak Ridge National Lab	Predictive System Simulation Capability for Evaluating Safety and Performance of Batteries	456,292
32112353	Oak Ridge National Lab	A Transformational, High Energy Density Secondary Aluminum Ion Battery	217,273
32112354	Oak Ridge National Lab	Designing high efficiency photovoltaic heterostructures by interfacing polar and nonpolar oxides at the atomic scale	278,142
32112355	Oak Ridge National Lab	Harnessing Nitrogen and Sulfur Cycles to Develop Microbial Consortia for Consolidated Bioprocessing	424,205
32112356	Oak Ridge National Lab	Femtosecond Electronic Spectroscopy of Complex Nanostructures and their Functional Assemblies	312,638
32112357	Oak Ridge National Lab	Cryogenic Development for a Measurement of the Neutron Electric Dipole Moment at the Spallation Neutron Source	228,899
32112358	Oak Ridge National Lab	Improving the Performance of Lithium Ion Batteries by Tuning The Graphite/Carbon Electrode Surface	250,008
32112359	Oak Ridge National Lab	Motional Changes in Biomolecular Complexation	96,531
32112360	Oak Ridge National Lab	Closing Technology Gaps with the Development of Advanced Fusion Experimental Facilities	267,615
32112363	Oak Ridge National Lab	Highly-Polar Oxides for Photovoltaics Beyond p-n Junctions	199,343
32112364	Oak Ridge National Lab	Theoretical Studies of Decoupling Phenomena in Dynamics of Soft Materials	228,369
32112365	Oak Ridge National Lab	Quantifying Economic Losses Associated with Climate Extremes under Conditions of Climatic and Socioeconomic Change	67,500
32112366	Oak Ridge National Lab	Scale Dependency in Dynamic Downscaling of Extreme Climate Events Over Complex Topography	407,974
32112367	Oak Ridge National Lab	New Neutron Scattering Experiments at the SNS	10,825
32122010	Oak Ridge National Lab	Control of the Ionic Flux by Nanofluidic Diodes	65,040
32122011	Oak Ridge National Lab	Unlocking Emergent Phenomena in Complex Materials through Spatial Confinement	89,326
32132010	Oak Ridge National Lab	Development of a Novel In-Situ Electron Microscopy Method to Study Interfaces in Li-ion Batteries: Application Towards Electrical Energy Storage Materials	33,545
32132011	Oak Ridge National Lab	Extended defect chemistry and optoelectronic activity in solar photovoltaic CdTe thin films	28,940
32132012	Oak Ridge National Lab	Investigation of Quinone-Containing Organic Molecules as Lithium Cathodes	44,393
	Total		32,239,375
	Administrative Cost		1,509,394
PN08002/2089	Pacific Northwest Nat'l Lab	A Statistical Framework for Integrated Explosives Detection	81,888

Project	Site name	Project Desc	FY2010 Cost
PN08003/2090	Pacific Northwest Nat'l Lab	Adaptation of Existing Probabilistic Risk Assessments to Support Reactor Aging Management	155,422
PN08004/2091	Pacific Northwest Nat'l Lab	Advanced Materials for Capturing Lanthanides and Transition Metals from Fission Products	55,876
PN08005/2092	Pacific Northwest Nat'l Lab	Application of Imperfection Modeling to Accelerated Fuel Clad Qualification and Characterization	99,902
PN08009/2096	Pacific Northwest Nat'l Lab	Biotemplated Synthesis of Encoded Bimetallic Nanoparticles	216,307
PN08018/2105	Pacific Northwest Nat'l Lab	Development and Understanding of Nanostructured Materials for Advanced Energy Storage	298,023
PN08018/2105A	Pacific Northwest Nat'l Lab	Advanced Nuclear Magnetic Resonance Characterization of Energy Storage Materials	240,157
PN08018/2105B	Pacific Northwest Nat'l Lab	Multiscale Charge and Ion Transport Simulations for Nanostructured Electrodes	355,766
PN08019/2106	Pacific Northwest Nat'l Lab	Development of a Ballistic Electron Microfabricated Cathode	6,414
PN08023/2110	Pacific Northwest Nat'l Lab	Development of Gaming Technology for Cognitive Enhancement in Predictive Analytics	278,346
PN08026/2113	Pacific Northwest Nat'l Lab	Dissolution of Actinides under Oxidizing Conditions for Nuclear Energy Applications	65,975
PN08028/2115	Pacific Northwest Nat'l Lab	Electrolyte Development for Next Generation of Lithium Ion Batteries	134,928
PN08031/2118	Pacific Northwest Nat'l Lab	First Operation of a Novel, High-Mass Detector as a Weakly Interacting Massive Particle (WIMP) Dark Matter Detector	80,090
PN08040/2127	Pacific Northwest Nat'l Lab	Ion Beam-Nanoparticle Interactions for Radiation Detection	118,519
PN08043/2130	Pacific Northwest Nat'l Lab	Knowledge Encapsulation Framework	292,203
PN08045/2132	Pacific Northwest Nat'l Lab	Leak Rate Measurements for Prototypic Pressurized Water Reactor Primary Water Stress Corrosion Cracks	84,759
PN08046/2133	Pacific Northwest Nat'l Lab	Machine Learning String Tools for Operational and Network Security	177,149
PN08047/2134	Pacific Northwest Nat'l Lab	Managing Complexity of High-Volume Predictive and Adaptive Network Operations	198,765
PN08054/2141	Pacific Northwest Nat'l Lab	Multicomponent Assembly to Achieve Charge Separation and Transport for Energy Conversion	424,393
PN08059/2146	Pacific Northwest Nat'l Lab	Nanoscale Tantalum Oxide Electrocatalysts for Polymer Electrolyte Membrane Fuel Cells	98,488
PN08065/2152	Pacific Northwest Nat'l Lab	Process Modeling of Chemically Complex Solid-Liquid Suspensions	249,714
PN08066/2153	Pacific Northwest Nat'l Lab	Prognostics and Predictive Risk Assessment in Computational Infrastructures	150,687
PN08072/2159	Pacific Northwest Nat'l Lab	Simultaneous Charge Transport in Laterally Confined One-Dimensional Systems	31,656
PN08077/2164	Pacific Northwest Nat'l Lab	Theoretical Modeling and Ex-Reactor Testing of Fuel Properties to Accelerate Fuel Qualification	193,550
PN08080/2167	Pacific Northwest Nat'l Lab	Understanding Ice Formation in the Atmosphere	709,253
PN09002/2170	Pacific Northwest Nat'l Lab	A Real-Time Optical Spectroscopy Platform for Investigating Molecular Mineral Transformations for CO2 Storage	385,605
PN09003/2171	Pacific Northwest Nat'l Lab	Advanced Cathodes for Sodium-Beta Batteries and Renewable Energy Applications	252,526
PN09004/2172	Pacific Northwest Nat'l Lab	Advanced Computing Architectures for Smart Sensors and Sensor Analytics	124,253
PN09005/2173	Pacific Northwest Nat'l Lab	Advanced Environmental Sampling Technology for Safeguards and Proliferation Detection	399,782
PN09006/2174	Pacific Northwest Nat'l Lab	Advanced Radiation Transport Methods	241,296
PN09007/2175	Pacific Northwest Nat'l Lab	Advanced Scalability for STOMP: Subsurface Simulation and Characterization at Extreme Resolution	337,598

Project	Site name	Project Desc	FY2010 Cost
PN09008/2176	Pacific Northwest Nat'l Lab	Advanced Sorptive and Signature Indicating Materials for Ultra-Trace Proliferation Detection	410,278
PN09010/2178	Pacific Northwest Nat'l Lab	Analytical Framework for Assessing the Economics of Reliable Fuel Services and Supply	94,227
PN09011/2179	Pacific Northwest Nat'l Lab	Application of a Systems Biology Approach to Understanding Protein Function	293,375
PN09012/2180	Pacific Northwest Nat'l Lab	Application of Nitrogen Trifluoride (NF3) to the Nuclear Fuel Cycle	154,992
PN09016/2184	Pacific Northwest Nat'l Lab	Community Diversity and Functional Redundancy of Cellulytic Microbial Communities in Soil Aggregates	280,321
PN09017/2185	Pacific Northwest Nat'l Lab	Cyber-Attack Risk Inference Model	201,953
PN09018/2186	Pacific Northwest Nat'l Lab	Data Assimilation Tools for CO2 Reservoir Model Development	246,933
PN09019/2187	Pacific Northwest Nat'l Lab	Demonstration of On-Line Monitoring and Physics Based Prognostics	198,710
PN09020/2188	Pacific Northwest Nat'l Lab	Designed Affinity Reagents with Extreme Stability and Selectivity	75,079
PN09021/2189	Pacific Northwest Nat'l Lab	Develop Ar-37 Measurement Capability for Treaty Verification Applications	213,832
PN09024/2192	Pacific Northwest Nat'l Lab	Development and Evaluation of an Externally-Mixed Sectional Aerosol Model	160,077
PN09025/2193	Pacific Northwest Nat'l Lab	Development of a Dual-Sided, Temperature-Controlled, Continuous-Flow Environmental Chamber	410,941
PN09026/2194	Pacific Northwest Nat'l Lab	Development of Exascale Algorithms for Molecular Modeling	349,596
PN09027/2195	Pacific Northwest Nat'l Lab	Distance-of-Flight Mass Spectrometry for Rapid, Portable Actinide Analysis	150,649
PN09028/2196	Pacific Northwest Nat'l Lab	Dual-Mode Imaging for Dismantlement Transparency	176,604
PN09031/2199	Pacific Northwest Nat'l Lab	Enhanced Ion Detection Mechanisms for Ion Mobility Spectrometry	171,810
PN09032/2200	Pacific Northwest Nat'l Lab	Exploration of Pan-Omics for Biological Research	472,707
PN09033/2201	Pacific Northwest Nat'l Lab	Exploring Architectures Suitable for Scientific Applications at Exascale Levels	296,042
PN09034/2202	Pacific Northwest Nat'l Lab	Friction Stir Welding of Creep-Resistant Oxide Dispersion Strengthened Alloys	160,348
PN09035/2203	Pacific Northwest Nat'l Lab	Geological Sequestration Software Suite Core Architecture and Simulation Framework	559,379
PN09036/2204	Pacific Northwest Nat'l Lab	Higher-Throughput, More Sensitive Stable Isotope Probing	299,413
PN09039/2207	Pacific Northwest Nat'l Lab	In Situ Imaging of Mineral-Supercritical CO2 Reactions with Atomic Force Microscopy	138,992
PN09040/2208	Pacific Northwest Nat'l Lab	In Situ Nuclear Magnetic Resonance Investigations of Trapping Mechanisms in CO2 Storage	487,857
PN09041/2209	Pacific Northwest Nat'l Lab	Instrumentation for Explosives Detection Research	95,141
PN09042/2210	Pacific Northwest Nat'l Lab	Isotopic Ratio Fluence Monitors for Canadian Deuterium Uranium (CANDU) and Pebble Bed Modular Reactor (PBMR) Plutonium Production Verification	141,865
PN09045/2213	Pacific Northwest Nat'l Lab	Marine Biomass and its Conversion to Liquid Transportation	150,752
PN09046/2214	Pacific Northwest Nat'l Lab	Material Interface Optimization in Extremely Thin Absorber Photovoltaics	119,968
PN09047/2215	Pacific Northwest Nat'l Lab	Microscale Spectroscopic Analyses of Cellulose Degradation and Uptake by a Microbial Community	192,732
PN09049/2217	Pacific Northwest Nat'l Lab	Multi-Modality Sensing Platform for Smart Detection of Explosive Traces	219,688
PN09050/2218	Pacific Northwest Nat'l Lab	Multiscale Investigation of CO2 Behavior in Subsurface Under Extreme Conditions	179,846
PN09051/2219	Pacific Northwest Nat'l Lab	Multiscale Modeling from Molecular Reactions to Catalytic Reactors	405,640
PN09053/2221	Pacific Northwest Nat'l Lab	Multiscale Models for Microbial Communities	200,033
PN09055/2223	Pacific Northwest Nat'l Lab	On-Line Flaw Detection in Reactor Piping using Acoustic Emission and Guided Wave Ultrasonic Techniques	169,772
PN09057/2225	Pacific Northwest Nat'l Lab	Oxygen Optode for Chemical Imaging in Microfluidic Microbial Models	202,749

Project	Site name	Project Desc	FY2010 Cost
PN09058/2226	Pacific Northwest Nat'l Lab	Precision Information Fusion Environments	184,748
PN09060/2228	Pacific Northwest Nat'l Lab	Rapid, Sensitive and Selective Explosives Detection Using Tunable Chemical Ionization Drift Mass Spectrometry	195,088
PN09061/2229	Pacific Northwest Nat'l Lab	Scalable Performance Diagnostics and Feedback for Massively Parallel Computers	444,029
PN09062/2230	Pacific Northwest Nat'l Lab	Sensitivity Analysis of Kalman Filter and Its Applications in Power Systems	215,343
PN09064/2232	Pacific Northwest Nat'l Lab	Spectroscopic X-ray Computed Tomography for Improved Explosives Detection	183,873
PN09065/2233	Pacific Northwest Nat'l Lab	Standoff Hyperspectral Imaging of Explosives Residues Using Broadly Tunable External Quantum Cascade Laser Illumination	113,178
PN09067/2235	Pacific Northwest Nat'l Lab	Surface Damage and Environment-Induced Cracking Precursors in Light Water Reactor Components	99,426
PN09068/2236	Pacific Northwest Nat'l Lab	Synthetic Biology Approach for Hydrocarbon Production in Microbial Photoautotrophs	142,632
PN09069/2237	Pacific Northwest Nat'l Lab	Thermally Stable Chemical Markers	108,498
PN09070/2238	Pacific Northwest Nat'l Lab	Tools for Evaluation of Net-Zero Community Concept and Integration of Buildings, Renewables and the Grid	160,141
PN09071/2239	Pacific Northwest Nat'l Lab	Transfer and Evaluation of the Community Atmosphere Model Parameterization Suite to Weather Research and Forecasting Model	182,981
PN09072/2240	Pacific Northwest Nat'l Lab	Transformational Materials for Advanced Stationary Electricity Storage	424,506
PN09073/2241	Pacific Northwest Nat'l Lab	Ultrascalable Solvers for Subsurface Simulation	231,788
PN10001/2243	Pacific Northwest Nat'l Lab	A Predictive Defense Model for the Smart Grid	355,087
PN10002/2244	Pacific Northwest Nat'l Lab	A Scalable Fault Tolerance Infrastructure and Algorithms with Programming Models and Scientific Applications	262,840
PN10003/2245	Pacific Northwest Nat'l Lab	Adaptive Cyber-Defense Using an Auto-Associative Memory Paradigm (ACAMP)	310,065
PN10004/2246	Pacific Northwest Nat'l Lab	Advanced Nondestructive Assay for Safeguards	454,895
PN10005/2247	Pacific Northwest Nat'l Lab	Alpha Voltaics	144,532
PN10006/2248	Pacific Northwest Nat'l Lab	Battle Damage Assessment for Cyber Warfare	108,938
PN10007/2249	Pacific Northwest Nat'l Lab	Behavioral and Social Modeling to Reduce Energy Use, Climate Change, and Power Grid Vulnerability	466,664
PN10008/2250	Pacific Northwest Nat'l Lab	Biochemistry of Glycan Signatures: A Novel Approach to Sensor and Vaccine Development	97,992
PN10009/2251	Pacific Northwest Nat'l Lab	Centralized Control vs. Decentralized Control: Implications of Demand Response and Distributed Resources on Power System Security	175,436
PN10010/2252	Pacific Northwest Nat'l Lab	CO2 Separation Scale-Up	1,019,586
PN10011/2253	Pacific Northwest Nat'l Lab	Combining Proteomic Technologies to Create a Platform for Spatiotemporal Enzyme Activity Profiling	115,575
PN10012/2254	Pacific Northwest Nat'l Lab	Comparing Performance on Different High Performance Computing Architectures	59,964
PN10013/2255	Pacific Northwest Nat'l Lab	Comparison of Assays Utilizing Existing Biological Reagents Specific for Explosives	67,616
PN10014/2256	Pacific Northwest Nat'l Lab	Computational Framework for Diagnostics, Validation and Intercomparison of Numerical Simulators for Geologic Sequestration	130,943
PN10015/2257	Pacific Northwest Nat'l Lab	Computational Studies of the Transport and Thermodynamic Characteristics of a Variety of Gases in Ionic Liquids	199,875
PN10016/2258	Pacific Northwest Nat'l Lab	Damage Maps for Waste Forms: Stage 1-Charge Imbalance Damage Sources	122,435

Project	Site name	Project Desc	FY2010 Cost
PN10017/2259	Pacific Northwest Nat'l Lab	Data Decomposition/Optimizations and Dynamic Load Balancing Mechanisms for Extreme Scale Computing in the Global Arrays Toolkit	202,487
PN10018/2260	Pacific Northwest Nat'l Lab	Deception for the Defense of Cyber Systems	68,457
PN10019/2261	Pacific Northwest Nat'l Lab	Detection and Characterization of Uranium Hexafluoride Reaction Products in the Environment	238,443
PN10020/2262	Pacific Northwest Nat'l Lab	Determination of Biosignatures Related to Explosives Exposure	179,512
PN10021/2263	Pacific Northwest Nat'l Lab	Developing Ice Nucleation Parameterizations for Large-Scale Models	135,838
PN10022/2264	Pacific Northwest Nat'l Lab	Development of a Regional Energy and Infrastructure Systems Framework	248,076
PN10023/2265	Pacific Northwest Nat'l Lab	Development of a State Prediction Methodology Powered by Phasor Measurement Unit Data to Improve Operational Reliability and Efficiency	179,250
PN10024/2266	Pacific Northwest Nat'l Lab	Development of Climate Modeling and Integrated Modeling at Regional Scales Framework and Functional Specifications	176,372
PN10025/2267	Pacific Northwest Nat'l Lab	Development of Inorganic Water Oxidation Electrocatalysts	184,044
PN10026/2268	Pacific Northwest Nat'l Lab	Development of Preparative Mass Spectrometry for the Creation of Novel Catalyst Materials	217,372
PN10027/2269	Pacific Northwest Nat'l Lab	Development of Prototype Integrated Earth System and Environmental System Models	369,534
PN10028/2270	Pacific Northwest Nat'l Lab	Development of Rechargeable Li/air Batteries	252,122
PN10029/2271	Pacific Northwest Nat'l Lab	Development of Regional Agriculture-Land Use Models	235,197
PN10030/2272	Pacific Northwest Nat'l Lab	Development of Regional-Global Climate Assessment Model	247,068
PN10031/2273	Pacific Northwest Nat'l Lab	Development of Techniques for Determining Medium-Range Order on the Surfaces of Catalysts Using Solid-State NMR Spectroscopy and Computational Chemistry	106,614
PN10032/2274	Pacific Northwest Nat'l Lab	Distinguishing Yersinia pestis from Natural Host and Laboratory Culture	127,810
PN10033/2275	Pacific Northwest Nat'l Lab	Enabling Hypothesis Driven Research and Discovery in Extreme Data	176,385
PN10034/2276	Pacific Northwest Nat'l Lab	Energy Absorptive Foams: Space-Age Polymers for Down-to-Earth Applications	237,423
PN10035/2277	Pacific Northwest Nat'l Lab	Extending Global Arrays Programming Model on Hybrid Architectures	195,775
PN10036/2278	Pacific Northwest Nat'l Lab	Extreme Scaling for List Based Pattern Comparisons (LiBaPaC)	64,333
PN10037/2279	Pacific Northwest Nat'l Lab	Fuel Synthesis Research	563,311
PN10038/2280	Pacific Northwest Nat'l Lab	Fundamentals of Carbonate Formation: Interactions of Carbon Dioxide with Supported Metal Oxide Clusters	142,804
PN10039/2281	Pacific Northwest Nat'l Lab	Geological Sequestration Software Suite: Numerical Model Development	247,280
PN10040/2282	Pacific Northwest Nat'l Lab	High Precision Isotope Forensics via Multi-Collector Multi-Collector Inductively Coupled Plasma Mass Spectrometry	219,812
PN10041/2283	Pacific Northwest Nat'l Lab	Ideas for Evaluation of Deep Convection Parameterizations With Scanning Radar Data	64,604
PN10042/2284	Pacific Northwest Nat'l Lab	Identification of Functional Proteins Relevant to Bioenergy and Disease Pathology by Multiplexed Activity-Based Protein Profiling	290,740
PN10043/2285	Pacific Northwest Nat'l Lab	Improving the Characterization of Aerosols as Forcing Agents in the Climate System	165,919
PN10044/2286	Pacific Northwest Nat'l Lab	In Situ High-Pressure X-Ray Diffraction Investigation of Caprock Mineral Reactions With Water Solvated in Supercritical CO2	169,273
PN10045/2287	Pacific Northwest Nat'l Lab	Information Integration for Forecasting Dynamic Organizational Behaviors	584,529
PN10046/2288	Pacific Northwest Nat'l Lab	Infrastructure Compatible Fuels and Chemicals from Biomass	121,479
PN10047/2289	Pacific Northwest Nat'l Lab	Innovative Processes for Integrated Emissions Management	51,269

Project	Site name	Project Desc	FY2010 Cost
PN10048/2290	Pacific Northwest Nat'l Lab	Integrated Regional Earth System Model (iRESM) Prototype Regional Testbed Specification and Selection	210,641
PN10049/2291	Pacific Northwest Nat'l Lab	Integrating Power and Performance Modeling for Exascale Systems	257,953
PN10050/2292	Pacific Northwest Nat'l Lab	Light Source Photocathode Performance and Development	150,070
PN10051/2293	Pacific Northwest Nat'l Lab	Materials and Methods for Low Cost Photovoltaic Manufacturing	298,981
PN10052/2294	Pacific Northwest Nat'l Lab	Methodology and Tool Development for Rapid Assessments for CO2 Capture Technologies	439,843
PN10053/2295	Pacific Northwest Nat'l Lab	Methodology Development for Optimal Energy Storage Sizing and Placement for Local and Regional Planners	248,644
PN10054/2296	Pacific Northwest Nat'l Lab	MicroCT Development for Multimodal Imaging in Systems Biology	119,812
PN10055/2297	Pacific Northwest Nat'l Lab	Micro-Fluidic Models for Studying Microbial Communities—Integration of Micro-Fluidic Model Experimentation, Multimodal Imaging, and Modeling	105,954
PN10056/2298	Pacific Northwest Nat'l Lab	Micromodel Pore-Scale Studies of Caprock-Sealing Efficiency and Trapping Mechanisms Related to CO2 Sequestration	551,433
PN10057/2299	Pacific Northwest Nat'l Lab	Mining the Data from Research on Dogs Exposed to Internally-deposited Radionuclides	244,811
PN10058/2300	Pacific Northwest Nat'l Lab	Molecular Structure and Interaction at Aqueous, Non-Aqueous Liquid Interfaces and Catalytic Solid Surfaces	239,621
PN10059/2301	Pacific Northwest Nat'l Lab	Multimodal X-Ray Imaging with a Grating-Based Interferometer	123,682
PN10060/2302	Pacific Northwest Nat'l Lab	Multiphysics Capability Development and Application to Magnesium Alloys	169,099
PN10061/2303	Pacific Northwest Nat'l Lab	Next Generation Software for Automated Structural Identification of Metabolites	170,928
PN10062/2304	Pacific Northwest Nat'l Lab	Non-Metal Activation of Hydrogen for Energy Storage in Chemical Bonds	209,498
PN10063/2305	Pacific Northwest Nat'l Lab	Novel Carbon Capture Materials	910,420
PN10064/2306	Pacific Northwest Nat'l Lab	Operation and Process Optimization of Gasification and Carbon Capture Test Facility	550,774
PN10065/2307	Pacific Northwest Nat'l Lab	Photoelectrochemical Flow Battery	285,024
PN10066/2308	Pacific Northwest Nat'l Lab	Predicting Climate Change Impacts on Hydropower and Riverine Ecosystems	148,531
PN10067/2309	Pacific Northwest Nat'l Lab	Predicting the Feasibility of Geologic Co-Sequestration of CO2, SOx and NOx Under a Broad Range of Conditions	78,270
PN10068/2310	Pacific Northwest Nat'l Lab	Proof-of-Principle Demonstration of Fluorescence Labeling of Cellulose and Microscopic Fluoresence Imaging of Cellulose Degradation	68,514
PN10069/2311	Pacific Northwest Nat'l Lab	Proteomics Measurements of Functional Redundancy and Stability Testing of Cellulose Degrading Anaerobic Microbial Communities Within Engineered Bioreactors	238,674
PN10070/2312	Pacific Northwest Nat'l Lab	Simulation of Future Electricity System Operations	107,733
PN10071/2313	Pacific Northwest Nat'l Lab	Speciation and Distribution of f-Elements for Enhanced Separations and Safeguards	234,797
PN10072/2314	Pacific Northwest Nat'l Lab	Standoff Detection of Trace Explosives on Vehicles Using a Cooled Dispersive Longwave Infrared Spectrometer	70,483
PN10073/2315	Pacific Northwest Nat'l Lab	The Analysis and Discovery of Influencing Factors in Social Media	189,233
PN10074/2316	Pacific Northwest Nat'l Lab	Three-Dimensional Structured Composite Nanomaterials for Energy Storage	249,800
PN10075/2317	Pacific Northwest Nat'l Lab	Transition and Transport of Surface Residue from Non-Volatile Explosives to Gas Phase Ions for Sensitive and Selective Detection	207,327
PN10076/2318	Pacific Northwest Nat'l Lab	Ultra-Nanoporous Explosives Sensing Material	143,681
PN10077/2319	Pacific Northwest Nat'l Lab	Underground Counting Capability Development and Potential Impacts	298,981

Project	Site name	Project Desc	FY2010 Cost
PN10078/2320	Pacific Northwest Nat'l Lab	Understanding the Sources and Consequences of Uncertainties	157,043
PN10079/2321	Pacific Northwest Nat'l Lab	Visualizing Uncertainty in Conceptual and Numerical Models for Geological Sequestration	83,776
PN10080/2322	Pacific Northwest Nat'l Lab	Vulcan: Unexpressed Communication	342,020
	Total		35,769,448
	Administrative Cost		(60,640)
PPPL-010	Princeton Plasma Physics Lab	Study of the Evolution of Magnetic Topology and Associated Global MHD Phenomena	159,083
PPPL-012	Princeton Plasma Physics Lab	Creation of a Plasma Source for Diamond Thin Film Deposition	193,668
PPPL-013	Princeton Plasma Physics Lab	Modeling of ULF Waves in Mercury's Magnetosphere	102,639
PPPL-014	Princeton Plasma Physics Lab	Plasma Synthesis of Hydrogen Peroxide	21,169
PPPL-015	Princeton Plasma Physics Lab	Development of Slowly Flowing Liquid Lithium Walls for a Fusion Reactor	3,625
PPPL-016	Princeton Plasma Physics Lab	X-ray Imaging Schemes with Matched Pairs of Spherically Bent Crystals	159,382
PPPL-017	Princeton Plasma Physics Lab	Full-wave Modeling of Wave-Plasma Interaction in Earth's Magnetosphere	172,072
PPPL-018	Princeton Plasma Physics Lab	Symplectic Integrators for Long-time Simulations of Multi-scale Dynamics of Gyro-center Particles	62,652
PPPL-019	Princeton Plasma Physics Lab	Multiscale Gyrokinetics for Magnetic Reconnection Plasmas	122,673
PPPL-020	Princeton Plasma Physics Lab	Development of Physical Models and Numerical Tools for Plasmas Interacting with the Absorbing Surface	65,354
PPPL-021	Princeton Plasma Physics Lab	Study of Magnetic Reconnection in Partially Ionized, Low-Temperature Plasmas	126,046
PPPL-023	Princeton Plasma Physics Lab	High Density Plasma Capsule for Raman Backscatter	68,196
PPPL-024	Princeton Plasma Physics Lab	Development of a Program of Plasma-Facing Components (PFCs) and Investigation of Plasma-Material Interactions Involving the PFCs	209,027
PPPL-025	Princeton Plasma Physics Lab	Remote Participation in International Fusion Experiments in the ITER Era	118,317
PPPL-026	Princeton Plasma Physics Lab	Magnetic Fusion Energy (MFE) Pilot Plant Study	144,251
PPPL-027	Princeton Plasma Physics Lab	Laboratory for Plasma-Based Nanotechnologies	50,290
	Total		1,778,444
	Administrative Costs	Paid by Laboratory overhead	
PX07001	Pantex Plant	High Explosives Operations Safety Controls Validation	33,919
PX07007	Pantex Plant	Reactions of Hydrofluoroethers	198,850
PX07008	Pantex Plant	Composition and Strength of Ta-Based Welds for Storing SNM Materials	56,694
PX08008	Pantex Plant	Benchtop High Explosives Testing	98,898
PX08010	Pantex Plant	Continuation of Microwave Technolgy Testing	257,858
PX08011	Pantex Plant	Determination of Hansen Solubility Parameters for Cleaning Applications	41,311
PX09001	Pantex Plant	Evaluation of Suspension Fluids Used In Laser Light Scattering	957
PX09002	Pantex Plant	Gas Reactions Within Sealed Volume of LANL and LLNL Weapons	14,723
PX09003	Pantex Plant	Optimization of High Explosive Molecular Weight Binder Analysis in Core Surveillance	7,815
PX09004	Pantex Plant	Ultra Performance Liquid Chromatography	2,253
PX09006	Pantex Plant	HNS Insoluble Material Evaluation by Soxhlet Extraction	7,208
PX09007	Pantex Plant	Lightning and Production Throughput	141,995

Project	Site name	Project Desc	FY2010 Cost
PX09008	Pantex Plant	Sylgard Viscous Flow Testing	6,585
PX09010	Pantex Plant	Digital Image Correlation (DIC)	22,960
PX09013	Pantex Plant	Severe Insults to High Explosives	250,921
PX09015	Pantex Plant	Fracture Mechanics of HMX Based HIgh Explosive Components	39,305
PX09016	Pantex Plant	Precision Coating PBX Formulation Process--Characterization and Testing	349,314
PX10001	Pantex Plant	RF ID Tracking of Medical Records	2,801
PX10002	Pantex Plant	Effects of Temperature on Explosives	7,782
PX10004	Pantex Plant	Test Equipment Environmental Sensor	10,732
PX10005	Pantex Plant	Portable Digital Microscopy Station (PDMS)	12,107
PX10009	Pantex Plant	Laser Gas Sampling of unweldable tube stock	336,573
	Total		1,901,561
	Administrative Cost		186,595
1	SLAC Nat'l Accelerator Lab	Development of Next Generation Laser for LCLS	580,626
2	SLAC Nat'l Accelerator Lab	Develop & Design for a Super B-factory Interaction	146,239
3	SLAC Nat'l Accelerator Lab	Computational Modeling and Simulation of Electron Dynamics & Excited States	328,982
4	SLAC Nat'l Accelerator Lab	Integrated TeV Gamma-ray Camera Readout System	314,496
5	SLAC Nat'l Accelerator Lab	Utralow Emittance Lattice & Study of Beam Dynamics for PEP-X	401,596
6	SLAC Nat'l Accelerator Lab	Detectors for Measurement of Cosmic Microwave Background Polarization	225,746
9	SLAC Nat'l Accelerator Lab	Large Germanium Dectors for Large Scale Dark Matter Search Experiments	400,053
10	SLAC Nat'l Accelerator Lab	Ultra High-repetition Rate Capabilities for Spear 3 and PEP-X	594,504
11	SLAC Nat'l Accelerator Lab	X-Ray Pulse timing Cavity	237,527
12	SLAC Nat'l Accelerator Lab	Foundation for the Theory Institute for Photon Sciences	110,406
	Total		3,340,175
	Administrative Costs	Paid by Laboratory overhead	
110404	Sandia National Lab	Network Design Optimization of Fuel Cell Systems and Distributed Energy Devices	83,139
117742	Sandia National Lab	Precision Nano-Bumping Technology for Large Format Focal Plane Arrays	589,911
117743	Sandia National Lab	Advanced Data Processing Module for Future Satellite Projects	337,527
117748	Sandia National Lab	Adaptive, Lightweight, Coated Fabrics for Protection from Low Velocity Fragments and Projectiles	303,812
117752	Sandia National Lab	Real-Time Individualized Training Vectors for Experiential Learning	309,645
117758	Sandia National Lab	Automated Entity Relationship Extraction	218,811
117759	Sandia National Lab	Extremely Thin Chemical Sensor Arrays Using Nanohole Arrays	320,135
117762	Sandia National Lab	Integrated Point-of-use Two Dimensional Fuel Cell	199,171
117764	Sandia National Lab	Understanding and Developing Countermeasures for Botnets	299,356
117775	Sandia National Lab	High-Speed Spectral Sensor	393,124
117778	Sandia National Lab	LEEM Examinations	198,393
117782	Sandia National Lab	Leveraging Multi-Way Linkages on Heterogeneous Data	598,724
117783	Sandia National Lab	Peridynamics as a Rigorous Coarse-Graining of Atomistics for Multiscale Materials Design	638,676
117784	Sandia National Lab	Predicting Fracture in Brittle Micron-Scale Structures	646,023
117785	Sandia National Lab	A Light Weight Operating System for Multicore Capability Class Supercomputers	411,585

Project	Site name	Project Desc	FY2010 Cost
117786	Sandia National Lab	Enhanced Molecular Dynamics for Simulating Thermal and Charge Transport Phenomena in Metals and Semiconductors	334,227
117787	Sandia National Lab	Solution Methods for Very Highly Integrated Circuits	193,014
117788	Sandia National Lab	Scalable Solutions for Processing and Searching Very Large Document Collections	370,098
117789	Sandia National Lab	Scaling I/O for High Performance Commodity Clusters	422,575
117790	Sandia National Lab	Surface Rheology and Interface Stability	429,891
117791	Sandia National Lab	Phenomenological Basis for Safety Assessment of Nuclear Process Facilities	213,091
117792	Sandia National Lab	Development of a New Generation of Waste Form for Entrapment and Immobilization of Highly Volatile and Soluble Radionuclides	418,290
117793	Sandia National Lab	Metal Fires and Their Implications for Advanced Reactors	398,331
117794	Sandia National Lab	Design and Evaluation of Border Management Systems	321,263
117795	Sandia National Lab	Computational and Experimental Platform for Understanding and Optimizing Water Flux and Salt Rejection in Nanoporous Membranes	495,373
117796	Sandia National Lab	Development of Efficient, Integrated Cellulosic Biorefineries	600,916
117798	Sandia National Lab	Intelligent Power Controllers for Self-Organizing Microgrids	404,479
117805	Sandia National Lab	Biosafety Risk Assessment Methodology (Biosafety-RAM)	197,972
117810	Sandia National Lab	Novel Instrumentation for Selective Photo-Ionization and Trapping of Fine Particles	450,965
117814	Sandia National Lab	Two-Pulse Rapid Remote Surface Contamination Measurement	383,556
117816	Sandia National Lab	Automatic Recognition of Malicious Intent (ARMI)	384,835
117818	Sandia National Lab	Active Coded-Aperture Neutron Imaging	503,045
117819	Sandia National Lab	Injection-Locked Composite Lasers for mm-Wave Modulation	425,296
117820	Sandia National Lab	Nanopatterned Ferroelectrics for Ultrahigh Density Rad-Hard Nonvolatile Memories	512,101
117822	Sandia National Lab	Integrated Optical Phase Locked Loop (IO-PLL) for Attosecond Timing in Microwave Oscillators	470,803
117825	Sandia National Lab	Four-Wave Mixing for Phase-Matching-Free Nonlinear Optics in Quantum Cascade Structures	411,271
117827	Sandia National Lab	A Revolution in Micropower: The Catalytic Nanodiode	247,451
117829	Sandia National Lab	Efficient Multi-Exciton Emission from Quantum Dots	602,370
117830	Sandia National Lab	Programmed Assembly of Nanoscale Three-Dimensional Networks of Inorganic Materials	507,079
117832	Sandia National Lab	Templated Synthesis of Nanomaterials for Ultracapacitors	577,513
117833	Sandia National Lab	Anomalous Suppression of Fatigue and Wear Through Stable Nanodomains	598,598
117834	Sandia National Lab	Impact of Defects on the Electrical Transport, Optical Properties and Failure Mechanisms of GaN Nanowires	719,880
117835	Sandia National Lab	Energy Conversion using Chromophore-Functionalized Carbon Nanotubes	382,097
117837	Sandia National Lab	Studies of the Viscoelastic Properties of Water Confined Between Surfaces of Specified Chemical Nature	440,491
117838	Sandia National Lab	Biomolecular Transport and Separation in Nanotubular Networks	606,928
117839	Sandia National Lab	Initiation of the TLR4 Signal Transduction Network - Deeper Understanding for Better Therapeutics	499,315
117840	Sandia National Lab	Trojan Horse Strategy for Deconstruction of Biomass for Biofuels Production	582,272
117841	Sandia National Lab	Enhanced Performance of Engineered Neural Networks using Nanostructured Probes and Predictive Computational Modeling	527,769

Project	Site name	Project Desc	FY2010 Cost
117842	Sandia National Lab	Atomic Magnetometer for Human Magnetoencephalography	519,468
117843	Sandia National Lab	Determination and Optimization of Spatial Samples for Distributed Measurements	128,427
117844	Sandia National Lab	Intrinsically Secure Communications Through Adaptive Beamforming	432,884
117845	Sandia National Lab	Advanced Cathode and Electrolyte for Thermal Batteries	435,084
117846	Sandia National Lab	MEMS-Enabled Integrated Optical Circuits for Nuclear Weapons Applications	517,448
117847	Sandia National Lab	3D Integration Technology for Highly Secure, Mixed Signal, Reconfigurable Systems	718,918
117849	Sandia National Lab	Creating a Smart Fast-Neutron Calibration Source	155,561
117851	Sandia National Lab	Microresonators for Advanced RF Systems	518,237
117853	Sandia National Lab	Novel Foam Encapsulation Materials and Processes	535,078
117856	Sandia National Lab	Measuring High-Pressure Strength on Pulsed Power Machines	538,832
117860	Sandia National Lab	Demonstration of Fast Pulsed Neutron Capability for Device and Board Testing	449,865
117863	Sandia National Lab	Scaling of X-Pinch X-Ray Sources from 1 MA to 6 MA	459,995
117866	Sandia National Lab	Physics of Intense, High Energy Radiation Effects	343,610
117992	Sandia National Lab	High-Throughput Discovery and Validation of Biomarkers for Biodefense	763,220
118841	Sandia National Lab	Aligned Mesoporous Architectures and Devices	9,586
118842	Sandia National Lab	Rheological Properties of Nanocomposites	9,739
118843	Sandia National Lab	A New Chamber Design for Aerosol Evolution Studies in the Ambient Environment	3,925
119351	Sandia National Lab	Network Discovery, Characterization and Prediction	4,506,910
119352	Sandia National Lab	Quantum Information Science and Technology	4,805,020
119634	Sandia National Lab	Applying a Sediment Mass Balance Approach to River Meander Migration Modeling: Predicting the Future Planform of the Middle Rio Grande	29,050
119638	Sandia National Lab	Using Reconfigurable Functional Units in Conventional Microprocessors	25,975
119639	Sandia National Lab	Heat Conduction and Particle Motion in Stationary Nanofluids	56,104
119640	Sandia National Lab	Nanotransport and Control of Molecules Through Molecular Gates	30,063
119644	Sandia National Lab	Solar Hydrogen Generation with Porous Semiconductor Electrodes	51,950
119647	Sandia National Lab	Physiological Models and Inference Based on Optical Imaging	51,950
120207	Sandia National Lab	Passive High-Flux Thermal Management of Electrochemical Systems with In Situ Microchannel Phase Change	57,280
120208	Sandia National Lab	Cosmic-ray Hydrometrology for Land Surface Studies	239,847
120209	Sandia National Lab	Multiscale Schemes for the Predictive Description and Virtual Engineering of Materials	250,198
120711	Sandia National Lab	Nanolithography by Combined Self-Assembly and Directed-Assembly	351,183
124007	Sandia National Lab	Fundamental Studies of Electrokinetic Phenomena in Polymer Microsystems	52,155
126613	Sandia National Lab	Solid-Oxide Electrochemical Reactor Science	110,611
130697	Sandia National Lab	A Toolkit for Detecting Technical Surprise	239,147
130698	Sandia National Lab	A Zero Power, Motion Sensitive MEMS Wake-Up Circuit	222,108
130699	Sandia National Lab	Advanced Optics for Military Systems	302,033
130700	Sandia National Lab	Highly Producible Focal Plane Array	999,873
130701	Sandia National Lab	Assessing Vulnerabilities of Wireless USB	208,783
130703	Sandia National Lab	Assessment of Software Streaming Technology	482,512
130704	Sandia National Lab	Automated AOI Management for Future Sensor Systems	694,281
130705	Sandia National Lab	Boundary-Layer Transition on Maneuvering Hypersonic Flight Vehicles	323,816
130707	Sandia National Lab	Directed Robots for Increased Military Manpower Effectiveness	376,404

Project	Site name	Project Desc	FY2010 Cost
130711	Sandia National Lab	Information Systems Analysis using Agent Collectives	413,572
130715	Sandia National Lab	Malware Attribution through Binary Analysis	350,942
130716	Sandia National Lab	Miniaturized Integrated RF Systems	397,931
130720	Sandia National Lab	Next Level Technology Development for Satellite Based Processing Architectures	698,993
130725	Sandia National Lab	Phase-Based Geolocation	297,497
130727	Sandia National Lab	Silicon Microphotonic Backplane for Focal Plane Array Communications	504,981
130729	Sandia National Lab	Velocity Independent Continuous Tracking Radar	654,959
130731	Sandia National Lab	Wavelength-Division-Multiplexed (WDM) Free Space Optical Communication Using a High Repetition Rate Coherent Broadband Short Pulse Laser	363,241
130732	Sandia National Lab	Equation-Free Simulation Methods for Multiple Timescale Diffusion Processes in Solids	407,803
130734	Sandia National Lab	Bayesian Data Assimilation for Stochastic Multiscale Models of Transport in Porous Media	536,638
130739	Sandia National Lab	Computational Mechanics for Geosystems Management to Support the Energy and Natural Resources Mission	1,287,390
130740	Sandia National Lab	Experimental Characterization of Energetic Material Dynamics for Multiphase Blast Simulation	658,637
130741	Sandia National Lab	Nanomanufacturing: Nano-Structured Materials Made Layer-by-Layer	1,134,989
130742	Sandia National Lab	Optimization of Large-Scale Heterogeneous System-of-Systems Models	919,007
130743	Sandia National Lab	System-Directed Resilience for Exascale Platforms	586,055
130744	Sandia National Lab	An Ion Beam Platform for Screening and Studying Materials for Use in Fast Neutron Environments	473,412
130745	Sandia National Lab	Cognitive Stakeholder Modeling for Resource Management	567,559
130746	Sandia National Lab	International Physical Protection Self-Assessment Tool for Chemical Facilities (IPPSAT-CF)	19,071
130748	Sandia National Lab	Linking Ceragenins to Water-Treatment Membranes to Minimize Biofouling	502,205
130749	Sandia National Lab	Membranes and Surfaces Nanoengineered for Pathogen Capture and Destruction	348,151
130750	Sandia National Lab	Modeling of Advanced Nuclear Fuel Pins	493,033
130751	Sandia National Lab	Novel Radiation Detection Technology for Active Interrogation	802,425
130752	Sandia National Lab	Scalable Microgrid for a Safe, Secure, Efficient, and Cost Effective Electric Power Infrastructure	518,724
130753	Sandia National Lab	Space Reactor Impact-Criticality Modeling for Launch Safety	422,052
130755	Sandia National Lab	A C. elegans-Based Foam for Rapid On-Site Detection of Residual Live Virus	556,163
130756	Sandia National Lab	Deployable Pathogen Diagnostic System	545,985
130759	Sandia National Lab	Development of an Explosive Materials Threat Assessment Tool	456,691
130760	Sandia National Lab	Intrinsic Security Principles	32,715
130761	Sandia National Lab	Non-Toxic, Non-Corrosive Approach for Decontamination of Anthrax Spores	437,052
130762	Sandia National Lab	Risk-based Security Cost-Benefit Analysis Tool	495,994
130763	Sandia National Lab	Target Detection and Tracking in Cluttered Environments using Rapidly Deployable VPED Sensor Networks	526,925
130764	Sandia National Lab	Uncooperative Biometric Identification at a Distance	515,315
130766	Sandia National Lab	Vulnerability of Multi-Network Infrastructure to Cascading Failure: Design of Robustness to Novel or Orchestrated Perturbations	435,091

Project	Site name	Project Desc	FY2010 Cost
130767	Sandia National Lab	Architecturally Controlled Nanocathode Materials for Improved Rechargeable Batteries	439,804
130768	Sandia National Lab	Atomic Mechanisms Governing Interface Formation in Nanostructured, Phase-Separated Thermoelectric Alloys	204,528
130769	Sandia National Lab	Bio-Inspired Nanocomposite Assemblies as Smart Skin Components	487,725
130770	Sandia National Lab	Characterization and Control of the Thermal Fluctuations of Nanosensors for Next Generation Sensitivity and Robustness	326,046
130771	Sandia National Lab	Enabling Graphene Nanoelectronics	1,029,326
130772	Sandia National Lab	Hierarchical Electrode Architectures for Electrical Energy Storage and Conversion	574,476
130773	Sandia National Lab	Hierarchical Morphology Control for Nanocomposite Solar Cells	621,754
130774	Sandia National Lab	High Temperature, Large Format FPAs for Emerging Infrared Sensing Applications	694,895
130775	Sandia National Lab	Narrow-Linewidth VCSELs for Atomic Microsystems	463,208
130777	Sandia National Lab	Phonon Manipulation with Phononic Crystals	585,995
130778	Sandia National Lab	Real-Time Studies of Battery Electrochemical Reactions Inside a Transmission Electron Microscope	479,609
130779	Sandia National Lab	Science-Based Solutions to Achieve High Performance Deep UV Laser Diodes	612,810
130780	Sandia National Lab	Mechanisms for Charge Transfer Processes at Electrode-Solid-Electrolyte Interfaces	744,536
130781	Sandia National Lab	A Systems Biology Approach to Understanding Viral Hemorrhagic Fever Pathogenesis	710,422
130782	Sandia National Lab	Biomolecular Interactions and Responses of Human Epithelial and Macrophage Cells to Engineered Nanomaterials	652,299
130783	Sandia National Lab	From Algae to Oilgae: In Situ Studies of the Factors Controlling Growth and Oil Production in Microalgae	556,792
130785	Sandia National Lab	K-Channels: On/Off Switches of Innate Immune Responses	424,941
130786	Sandia National Lab	Modeling Cortical Circuits	280,492
130787	Sandia National Lab	Robust Automated Knowledge Capture	507,077
130791	Sandia National Lab	Embeddable Optical Current Monitors for High-Current Signal Confirmation	401,472
130792	Sandia National Lab	Faraday Micro-Shields and Novel Electromagnetic Isolation Structures	301,043
130793	Sandia National Lab	Field and Charge Penetration By Lightning Burnthrough	298,734
130794	Sandia National Lab	MEMS-Based Non-Volatile Memory Technology	502,070
130796	Sandia National Lab	Nanomaterials for Surety Application	359,995
130797	Sandia National Lab	Novel Dielectrics with Engineered Thermal Weaklink	361,803
130798	Sandia National Lab	Signal Processing Techniques for Communication Security	203,011
130799	Sandia National Lab	Solid State Neutron Sources	655,101
130800	Sandia National Lab	Understanding and Predicting Metallic Whisker Growth and its Effect on Reliability	351,095
130801	Sandia National Lab	Vapor Phase Lubrication for Advanced Surety Components	650,921
130802	Sandia National Lab	Advanced Tactical HPM System via NLTL and LWA	653,529
130804	Sandia National Lab	Confinement of High-Temperature Laser-Produced Deuterium Plasmas Using Pulsed Magnetic Fields	332,336
130805	Sandia National Lab	High-Efficiency High-Energy K-alpha Source for the Critically-Required Maximum Illumination of X-ray Imaging Optics on Z Using Z-Petawatt-Driven Laser-Breakout-Afterburner-Accelerated Ultra-Relativist	226,393
130806	Sandia National Lab	Material Development for Radiation Hardness	603,031

Project	Site name	Project Desc	FY2010 Cost
130807	Sandia National Lab	Modeling Ramp Compression Experiments using Large-Scale Molecular Dynamics Simulation	420,657
130808	Sandia National Lab	New Density Functional Theory Approaches for Enabling Prediction of Chemical and Physical Properties of Heavy Elements	375,196
130809	Sandia National Lab	Study of Radiative Blast Waves Generated on the Z-Beamlet Laser	250,198
130810	Sandia National Lab	Computational Models of Intergroup Competition and Warfare	30,224
130812	Sandia National Lab	Data-Driven Optimization of Dynamic Reconfigurable Systems of Systems	29,955
130813	Sandia National Lab	Development and Characterization of 3D, Nano-Confined Multicellular Constructs for Advanced Biohybrid Devices	237,267
130814	Sandia National Lab	Development of a Structural Health Monitoring System for the Assessment of Critical Transportation Infrastructure	29,795
130815	Sandia National Lab	Distributed Video Coding for Arrays of Remote Sensing Nodes	29,123
130817	Sandia National Lab	Evaluation of Baseline Numerical Schemes for Compressible Turbulence Simulations	61,302
130818	Sandia National Lab	Interfacial Electron and Phonon Scattering Processes in High-Powered Nanoscale Applications	246,669
130820	Sandia National Lab	Nanocomposite Materials for Efficient Solar Hydrogen Production	31,076
130821	Sandia National Lab	Nanotexturing of Surfaces to Reduce Melting Point	56,836
130823	Sandia National Lab	Neural Correlates of Attention	58,966
130826	Sandia National Lab	PIV Investigation of the Richtmyer-Meshkov Instability after Reshock	26,944
130827	Sandia National Lab	Relating Polymer Dynamics to Molecular Packing	25,975
131302	Sandia National Lab	Metamaterial Science and Technology	4,051,685
131303	Sandia National Lab	Reimagining Liquid Transportation Fuels: Sunshine to Petrol	3,964,860
131305	Sandia National Lab	Featureless Tagging Tracking and Locating	1,737,575
131333	Sandia National Lab	High Fidelity Nuclear Energy System Optimization	21,787
131503	Sandia National Lab	High Frequency RF Effects	263,829
131541	Sandia National Lab	Security Through Unpredictability	299,712
134529	Sandia National Lab	Complex Adaptive Systems of Systems (CASoS) Engineering and Applications to the Global Energy System (GES)	609,203
135039	Sandia National Lab	Unintended Consequences of Climate Mitigation	68,013
135569	Sandia National Lab	Nanostructured Material for Advanced Energy Storage	29,684
135790	Sandia National Lab	Hazard Analysis and Visualization of Dynamic Complex Systems	65,762
137299	Sandia National Lab	Processor Modeling for use in Large-Scale Systems Models	51,950
137804	Sandia National Lab	Designer Catalysts for Next Generation Fuel Synthesis	82,866
137807	Sandia National Lab	Reduced Order Models for Thermal Analysis	14,796
139352	Sandia National Lab	The Theory of Diversity and Redundancy in Information System Security	137,118
139708	Sandia National Lab	Development of a System for Identification of Data	296,459
139867	Sandia National Lab	Uncertainty Quantification for Large-Scale Ocean Circulation Predictions	83,963
140641	Sandia National Lab	Uncertainty Quantification of US Southwest Climate From IPCC Projections	96,737
140764	Sandia National Lab	Quantitative Laboratory Measurements of Biogeochemical Processes Controlling Biogenic Calcite Carbon Sequestration	117,306
141076	Sandia National Lab	Responsive Nanocomposites	581,428
141078	Sandia National Lab	Thermokinetic/Mass-transfer Analysis of Carbon Capture for Reuse/Sequestration	98,261

Project	Site name	Project Desc	FY2010 Cost
141359	Sandia National Lab	Improved High Temperature Solar Absorbers for use in Concentrating Solar Power Central Receiver Applications	39,938
141370	Sandia National Lab	Three Pathways to Enhanced Energy Storage	196,310
141505	Sandia National Lab	An Internet Emulation System to Enable Predictive Simulation of Nation-Scale Internet Behavior	1,102,439
141506	Sandia National Lab	Effects of Morphology on Ion Transport in Ionomers for Energy Storage	859,330
141507	Sandia National Lab	Development, Sensitivity Analysis and Uncertainty Quantification of High-Fidelity Arctic Sea-Ice Models	113,011
141508	Sandia National Lab	Multiscale Models of Nuclear Waste Reprocessing: From the Mesoscale to the Plant-Scale	1,004,304
141509	Sandia National Lab	Predictive Multiscale Modeling of Thermal Abuse in Transportation Batteries	940,861
141510	Sandia National Lab	Risk Assessment of Climate Systems for National Security	826,774
141511	Sandia National Lab	Streaming Data Analysis for Cybersecurity	905,842
141512	Sandia National Lab	Calculations of Charge Carrier Mobility and Development of a new Class of Radiation Sensors for Real-Time 3D Source Location	382,450
141513	Sandia National Lab	Chirality-Controlled Growth of Single-Walled Carbon Nanotubes	551,540
141514	Sandia National Lab	Development of Electron Nano-Probe Technique for Structural Analysis of Nanoparticles and Amorphous Thin Films	481,791
141515	Sandia National Lab	Dynamically and Continuously Tunable Infrared Photodetector Using Carbon Nanotubes	500,849
141517	Sandia National Lab	Efficient, High-Voltage, High-Impedance GaN/AlGaN Power FET and Diode Switches	476,984
141518	Sandia National Lab	Electrodeposition of Scalable Nanostructured Thermoelectric Devices with High Efficiency	600,517
141519	Sandia National Lab	Greater-Than 50% Efficient Photovoltaic Solar Cells	1,376,652
141520	Sandia National Lab	Microfabricated Nitrogen-Phosphorus Detector: Chemically Mediated Thermionic Emission	801,458
141521	Sandia National Lab	Nanoporous Polymer Thin-Films from Tri-Block Copolymers	429,832
141522	Sandia National Lab	Surface Engineering of Electrospun Fibers to Optimize Ion and Electron Transport in Li+ Battery Cathodes	489,043
141523	Sandia National Lab	Understanding the High Temperature Limit of THz Quantum Cascade Lasers (QCLs) Through Inverse Quantum Engineering (IQE)	521,535
141524	Sandia National Lab	Construction of an Abiotic Reverse-Electron Transfer System for Energy Production and Many Biocatalytic Pathways	201,155
141528	Sandia National Lab	From Benchtop to Raceway: Spectroscopic Signatures of Dynamic Biological Processes in Algal Communities	787,217
141529	Sandia National Lab	From Sensing to Enhancing Brain Processes	502,341
141530	Sandia National Lab	Genome-Wide RNA Interference Analysis of Viral Encephalitis Pathogenesis	560,049
141531	Sandia National Lab	Neurological Simulations for Emerging Brain Maps	562,184
141532	Sandia National Lab	Real-Time Neuronal Current Imaging of the Human Brain to Improve Understanding of Decision Making Processes	397,142
141533	Sandia National Lab	Advanced K-Shell X-Ray Sources for Radiation Effects Sciences on Z	579,397
141534	Sandia National Lab	High Peak Power / Pulse Energy Laser Sources	446,355
141535	Sandia National Lab	Mixed Hostile-Relevant Radiation Capability for Assessing Semiconductor Device Performance	635,627

Project	Site name	Project Desc	FY2010 Cost
141536	Sandia National Lab	Shock Compression of Liquid Helium and Helium-Hydrogen Mixtures	332,113
141537	Sandia National Lab	Stability of Fusion Target Concepts on Z	995,539
141538	Sandia National Lab	Ultrashort Pulse Laser-Triggering of Long Gap High Voltage Switches	633,265
141540	Sandia National Lab	X-Ray Thomson Scattering Measurements of Warm Dense Matter	936,222
141541	Sandia National Lab	2D Tracking of Maneuvering and Closely Spaced Targets and Fusion into 3D Tracks	448,074
141542	Sandia National Lab	Novel Techniques for the Geolocation of Sources Using Timing-Based Sensors	159,733
141543	Sandia National Lab	Air Delivered SIGINT Sensor System Study	374,070
141586	Sandia National Lab	Application of Non-Coherent Processing for Added Link Margin and Lower Profile Signaling	168,728
141587	Sandia National Lab	Augmented Cognition Tool for Rapid Military Decision Making	233,423
141588	Sandia National Lab	Developing an Architecture for Leveraging Information between Heterogeneous Modeling and Simulation Tools to Provide Critical System-of-Systems Analysis Capabilities	535,665
141589	Sandia National Lab	Development of 3D Tools for Threat Signatures	552,391
141590	Sandia National Lab	Explosively Driven High Power Microwave Source	369,967
141591	Sandia National Lab	Generalized Code Obfuscation	364,934
141592	Sandia National Lab	High-Contrast Decoration of De-Layered Integrated Circuit Surfaces Using Molecular Markers	148,139
141593	Sandia National Lab	High-Efficiency High-Power Laser for Directed Energy Application	551,838
141594	Sandia National Lab	High-Performance, High-Density Interconnect Technologies for Next Generation Satellite Systems	500,369
141595	Sandia National Lab	Hybrid Femtosecond/nanosecond Pulsed Laser Machining	164,897
141596	Sandia National Lab	Investigating Payloads and Missions for CubeSat Systems	634,235
141597	Sandia National Lab	Laser Characterization and Prediction for Silicon Sensors	527,430
141598	Sandia National Lab	Remote Laser Location and Identification	698,091
141599	Sandia National Lab	Local Space Environmental Sensing Suite	191,466
141600	Sandia National Lab	Localized Ion Radiation Effects	156,265
141601	Sandia National Lab	Low Level Control Systems Assessment	272,217
141602	Sandia National Lab	Low Probability of Detection, Directly Synthesized, Digital Ultra-Wideband Communications	489,450
141603	Sandia National Lab	Model Checking for Latent Vulnerability Detection in Source Code	160,231
141604	Sandia National Lab	Optimization of Time-Critical Constellation Scheduling	346,963
141605	Sandia National Lab	Packaged Integrated Thin Sensor	864,603
141606	Sandia National Lab	Remote Sensing of HF and Green House Gases by Means of Gas Filter Correlation Radiometry	390,367
141607	Sandia National Lab	Hybrid AI/Cognitive Tactical Behavior Framework for LVC Simulations	587,354
141608	Sandia National Lab	Self-Consuming Structural Composites	215,094
141609	Sandia National Lab	Solid-State Replacement of Traveling Wave Tubes for Next Generation SAR	248,395
141610	Sandia National Lab	Space Payload Flight Software Architecture	390,660
141611	Sandia National Lab	Tightly Coupled Navigation and Targeting	243,263
141612	Sandia National Lab	Tools for Evaluating Embedded Wireless Devices	340,989
141613	Sandia National Lab	Use of Phase Conjugation in High Energy Laser Systems	202,932
141614	Sandia National Lab	Advanced Battery Materials for Improved Mobile Power Safety	624,147

Project	Site name	Project Desc	FY2010 Cost
141615	Sandia National Lab	Bridging the Gap Between Atomistic Phenomena and Continuum Behavior in Electrochemical Energy Storage Processes	420,224
141616	Sandia National Lab	Development of Coherent Germanium Neutrino Technology (CoGeNT) for Reactor Safeguards	344,413
141617	Sandia National Lab	First-Principles Flocculation as the Key to Low Energy Algal Biofuels Processing	900,261
141618	Sandia National Lab	Novel Room Temperature Synthesis of Nuclear Fuel Nanoparticles by gamma-Irradiation	530,089
141619	Sandia National Lab	Programmable Nano-materials for Reversible CO2 Sequestration	636,798
141668	Sandia National Lab	Radionuclide Transport from Deep Boreholes	730,462
141669	Sandia National Lab	Safeguards and Arms Control Authentication	297,298
141670	Sandia National Lab	Transportation Energy Pathways	653,864
141674	Sandia National Lab	Advanced Plastic Scintillators for Neutron Detection	107,943
141676	Sandia National Lab	Characterizing Pathogens Based on Host Response	445,871
141677	Sandia National Lab	Detection of Nuclear Radiation by RF Susceptibility	124,506
141678	Sandia National Lab	Graded Engagement of Small Aircraft and UAVs for Physical Protection	326,749
141679	Sandia National Lab	Innovative Electric Power Grid Architecture for High-Penetration Distributed Renewable Energy Generation	99,970
141680	Sandia National Lab	Rapid Radiation Biodosimetry to Mitigate Exposure Scenarios	433,513
141681	Sandia National Lab	Use of Metal Organic Fluors for Spectral Discrimination of Neutrons and Gammas	128,842
141682	Sandia National Lab	Web Sensor	290,156
141683	Sandia National Lab	Advanced Gas Transfer Systems Technology	251,489
141684	Sandia National Lab	Antennas with Integrated Metamaterial High-Impedance Surfaces on Flexible Substrates	198,023
141685	Sandia National Lab	Feasibility Study of a Secure ASIC Hybrid for Surety Systems	211,826
141688	Sandia National Lab	Fully Integrated Switchable Filter Banks for Advanced Radar Applications	300,959
141689	Sandia National Lab	Meso Scale Highly Elastic Structures (MESHES) for Surety Mechanisms	383,214
141690	Sandia National Lab	Nanoparticle Based Filler for Neutron Generator Epoxies	134,870
141691	Sandia National Lab	Selective Stress-Based Microcantilever Sensors for Enhanced Surveillance	604,615
141692	Sandia National Lab	The Role of Hydrogen Isotopes in Deformation and Fracture of Aluminum Alloys	303,279
141700	Sandia National Lab	Trusted Computing Solution for an Un-Trusted Computing Environment	151,082
141704	Sandia National Lab	Nature Versus Nurture in Cellular Behavior and Disease	769,257
141712	Sandia National Lab	Understanding the Fundamentals of Plastic Deformation	229,430
141927	Sandia National Lab	Development of First-Principles Methodologies to Study Electro-Catalytic Reactions at Metal/Electrolyte Interfaces	59,968
141928	Sandia National Lab	Covalently Cross-Linked Diels-Alder Polymer Networks	29,149
141929	Sandia National Lab	Effect of Doping on the Performance of Solid-Oxide Fuel Cell Electrolytes Produced by a Combination of Suspension Plasma Spray and Very Low Pressure Plasma Spray	30,278
141930	Sandia National Lab	A Quantum Network Based on Telecomm Interconnects for Secure Communications	30,281
141931	Sandia National Lab	Multicomponent Approach Calculations of Electromagnetic Scattering in Turbid Media	25,389
141932	Sandia National Lab	Modeling and Simulation of Explosive Dispersal of Liquids	26,669
141933	Sandia National Lab	MBE Growth and Transport Properties of Carbon-Doped High Mobility Two-Dimensional Hole Systems	30,032
142042	Sandia National Lab	RapTOR: Rapid Threat Organism Recognition	4,254,057

Project	Site name	Project Desc	FY2010 Cost
142044	Sandia National Lab	Power Reduction Techniques for Modern Modulation Schemes	30,483
142440	Sandia National Lab	Metrology of 3D Nanostructures	28,279
142441	Sandia National Lab	Genetic Engineering of Cyanobacteria as Biodiesel Feedstock	183,420
142540	Sandia National Lab	Surety Portal	574,776
142543	Sandia National Lab	Enabling Self-Powered Ferroelectric Nano-Sensors: Fundamental Science of Interfacial Effects Under Extreme Conditions	548,351
142545	Sandia National Lab	Investigation of Materials Compatibility Issues Associated with the Feasibility of Liquid Metal Use in Nuclear Weapons Applications	256,475
143418	Sandia National Lab	Minority Carrier Recombination in III-Nitride Heterostructure Bipolar Transistors	124,920
145281	Sandia National Lab	Paradigms for Skill Assessments	95,521
145282	Sandia National Lab	Development Toward a Nano-Thermal Interface Material	100,393
145283	Sandia National Lab	Physically Unclonable Function (PUF) Based Software Authentication and Component Binding	152,904
145284	Sandia National Lab	System Metrics for Comparative Analysis of Cyber Security Systems	98,969
145832	Sandia National Lab	Integration of Block-Copolymer With Nanoimprint Lithography: Pushing the Boundaries of Emerging Nanopatterning Technology	526,152
145835	Sandia National Lab	Understanding the Physics of a Possible Non-Abelian Fractional Quantum Hall Effect State	177,532
145969	Sandia National Lab	Online Learning Techniques for Improving Robot Navigation in Unfamiliar Domains	51,950
145970	Sandia National Lab	Performance Monitoring and Enhancement in Data Center	30,389
145997	Sandia National Lab	Fouling-Resistant Poly(ethylene glycol)-Grafted Polyamide Desalination Membranes for Produced Water Purification	29,721
145998	Sandia National Lab	Modeling Attacker-Defender Interactions in Information Networks	99,036
146013	Sandia National Lab	Advanced Constitutive Models for Thermally Activated Shape Memory Polymers: Connecting Structure to Function	53,328
146152	Sandia National Lab	Scalable Assembly of Patterned Ordered Functional Micelle Arrays	419,641
147259	Sandia National Lab	Novel Approaches to Artifical Photosynthesis Using Biomorphic Cooperative Binary Ionic Solids	199,272
147296	Sandia National Lab	Discovering Tensor Structure via Higher-Order Eigen-Decompositions	54,118
147298	Sandia National Lab	Self-Activating and Doped Tantalate Phosphors	49,964
147374	Sandia National Lab	Characterization of Failure Modes in Deep UV and Deep Green LEDs Utilizing Advanced Semiconductor Localization Techniques	174,925
147486	Sandia National Lab	Laser Wafering ? Accelerating Moore?s Law for Silicon Solar	51,263
147940	Sandia National Lab	Molecular-Scale Measurements of Electric Fields at Electrochemical Interfaces	128,921
147942	Sandia National Lab	Photoelectronic Characterization of Heterointerfaces	157,311
148066	Sandia National Lab	Guiding Options for Optimal Biofuels	171,319
148067	Sandia National Lab	Nanoparticle Modification of Photodefined Nanostructures for Sensor and Energy Applications	88,521
148196	Sandia National Lab	Laser-Based Radiation-Induced Conductivity in Kapton Polyimide Dielectrics at High Dose Rates	159,723
148373	Sandia National Lab	Modeling a Chemical Defense Strategy	170,344
148549	Sandia National Lab	Ion-Photon Quantum Interface: Entanglement Engineering	171,527
148895	Sandia National Lab	A Bio-synthetic Interface for Discovery of Viral Entry Mechanisms	173,667

Project	Site name	Project Desc	FY2010 Cost
148896	Sandia National Lab	Application of Multivariate Analysis Techniques to Measurements in Optically Thick Environments	50,470
148898	Sandia National Lab	Diffusion Among Cognitively Complex Agents in Limited Resource Settings	140,014
148900	Sandia National Lab	Localized Temperature Stable Dielectrics for Low Temperature Co-Fired Ceramic	162,642
148901	Sandia National Lab	Micro-Optics for Imaging	84,948
148957	Sandia National Lab	Fundamental Hydrogen Interactions With Beryllium Surfaces: A Magnetic Fusion Perspective	142,844
148958	Sandia National Lab	Active IR Materials for Beam Steering	152,467
149016	Sandia National Lab	High Performance Computing for Advanced National Electric Power Grid Modeling and Integration of Solar Generation Resources	424,157
149045	Sandia National Lab	Distinguishing Documents by Part-of-Speech Dynamics	45,153
149046	Sandia National Lab	Development of a Quantum Chemistry Application within a Scale-Free Computing Model	65,899
149047	Sandia National Lab	Sensitivity Analysis Techniques for Models of Human Behavior	43,353
149048	Sandia National Lab	Peer-to-Peer Architectures for Exascale Computing	101,206
149049	Sandia National Lab	Influence of Point Defects on Grain Boundary Motion	49,943
149204	Sandia National Lab	Hyperspectral Flow Cytometer	50,127
149205	Sandia National Lab	Natural Materials for Carbon Capture	41,435
149208	Sandia National Lab	Red and Yellow Emitters Using Dilute-nitride (AlGa)(PN) Alloys	100,587
149209	Sandia National Lab	Molecular Modeling in Support of CO2 Sequestration and Enhanced Oil Recovery	47,065
149210	Sandia National Lab	Nanocrystal-Enabled Solid State Bonding	109,960
149211	Sandia National Lab	Polymer Adaptive Lens Athermalization	85,563
149212	Sandia National Lab	PV Self-Assembly	92,811
149214	Sandia National Lab	Mechanical Properties of Self-Lubricating, Nanocrystalline Metal Films	137,878
149281	Sandia National Lab	Hybrid EEG / tDCS Devices	127,979
149283	Sandia National Lab	The Integration of Process Monitoring and Data Authentication for Safeguards	73,800
149381	Sandia National Lab	A Simple And Rapid Method For Detecting Contamination By Engineered Nanoparticles	74,360
149401	Sandia National Lab	Active Radiation Detection	82,044
149402	Sandia National Lab	Chemical Strategies for Die/wafer Sub-Micron Alignment and Bonding	110,975
149403	Sandia National Lab	Microchannel Sampling for Climate Change Monitoring	118,966
149404	Sandia National Lab	Room Temperature Detector Array Technology for the Terahertz to Far-infrared	75,259
149405	Sandia National Lab	Ultrathin Coatings of Nanoporous Materials as Property Enhancements for Advanced Functional Materials	127,445
149406	Sandia National Lab	Demonstration of High Current Device	105,971
149407	Sandia National Lab	Exploration of THz phenomenology for THz Imaging	101,950
149408	Sandia National Lab	Robust High-Sensitivity EEG Data Analysis Tool	74,106
149479	Sandia National Lab	Lagrangian Shock Modeling in Highly Deformable Materials with Remeshing	57,546
149520	Sandia National Lab	Systems Analysis Tools for Next-Generation Grid Planning, Operations, and Control	121,624
149521	Sandia National Lab	Parallel Octree-Based Hexahedral Mesh Generation for Eularian to Lagrangian Conversion	205,220
149522	Sandia National Lab	Algorithm and Exploratory Study of the Hall Term in 3D Raleigh-Taylor Instabilities	55,217
149559	Sandia National Lab	Diamond Nanowire Modeling and Synthesis	100,282

Project	Site name	Project Desc	FY2010 Cost
149563	Sandia National Lab	Ground Water and Snow Sensor Based on Directional Detection of Cosmogenic Neutrons	115,174
149565	Sandia National Lab	A Generalized Subgrid Fragmentation Capability for Hydrostructural Simulations	71,786
149566	Sandia National Lab	A Novel Experimental Approach for Quantum Information Sciences	55,394
149567	Sandia National Lab	Automated Malware Analysis	127,442
149568	Sandia National Lab	Development of Chemiresponsive Sensors for Detection of Common Homemade Explosives	102,055
149569	Sandia National Lab	Indigenous Surveillance and Reconnaissance Platform	90,169
149571	Sandia National Lab	Managing Shared Memory Data Distribution in Hybrid HPC Applications	51,884
149572	Sandia National Lab	Neurophysiology-Based Bilateral Asymmetry: A Face in Conflict as a Standoff Biometric Signature of Hostile Emotion or Malicious Intent?	85,193
149573	Sandia National Lab	Switching Dynamics of a MEMS Controlled Thyristor	97,791
149579	Sandia National Lab	Tailored Control of Bismuth Telluride-Based Thermoelectric Nanowires	379,237
149580	Sandia National Lab	Video SAR Compression	89,782
149630	Sandia National Lab	Exploration of Cloud Computing	200,418
149639	Sandia National Lab	A Method to Mathematically Compare Neurocognitive Models to Humans	45,593
149654	Sandia National Lab	Coevolutionary Approach to Countering IED Threats	78,586
149655	Sandia National Lab	Effective Programming Tools and Techniques for the New Graph Architecture HPC Machines	125,167
149656	Sandia National Lab	Enabling R&D for Accurate Simulation of Non-Ideal Explosives	78,650
149657	Sandia National Lab	First-Principles Predictions of Electronic Properties in Functionalized Graphene Nanoribbons	58,741
149658	Sandia National Lab	Quantifying the Debonding of Inclusions Through Tomography and Computational Homology	53,229
149660	Sandia National Lab	Target Materials for Dual Neutron/Gamma Generators	132,479
149665	Sandia National Lab	Biotechnology Development for Biomedical Applications	402,400
149704	Sandia National Lab	Toward Exascale Computing through Neuromorphic Approaches	90,913
149705	Sandia National Lab	Ultrasensitive, Amplification-Free Assays for Detecting Pathogens	131,299
149819	Sandia National Lab	QMU as Approach to Strengthening the Predictive Capabilities of Complex Models	88,111
149938	Sandia National Lab	A Novel Method of CO2 Capture and Conversion	160,540
149939	Sandia National Lab	Advanced Atom Chips with Two Metal Layers	50,175
149940	Sandia National Lab	All-Fiber Saturable Absorber	82,289
149941	Sandia National Lab	Exploration and Development of Air Bearing Heat Exchanger Technology	221,630
149942	Sandia National Lab	Electronic Battle Damage Assessment	82,632
149943	Sandia National Lab	Neutron Imaging of Warheads for Future Treaty Monitoring	187,581
149944	Sandia National Lab	Spectral Imaging Sensor with Pixelated Custom Filter Array for Environmental Measurements	141,002
149945	Sandia National Lab	Working Memory Metrics for User Interface Evaluation	34,542
150113	Sandia National Lab	3D Precision Decision Analysis	73,444
150114	Sandia National Lab	Analysis of Advanced Biofuels	49,436
150115	Sandia National Lab	Attosat Lorentz Augmented Orbit (LAO) Flight Dynamics	67,749
150116	Sandia National Lab	Concept Design for Neutron Source for Short Pulse Active SNM Detection	79,777
150117	Sandia National Lab	Demonstrating Utility of Optical Tags by Considering the Tag/Interrogator System and CONOPS ? What?s Important?	100,046

Project	Site name	Project Desc	FY2010 Cost
150118	Sandia National Lab	Group Automated Knowledge Capture	86,335
150119	Sandia National Lab	IR Energy Harvesting: Traveling Wave Surface Plasmon Enhanced IR Rectenna	139,465
150120	Sandia National Lab	Markings and Patterns for 3D Packages and Components	150,266
150121	Sandia National Lab	Persistent Surveillance using a Tethered Aerostat	51,506
150122	Sandia National Lab	Statistical Measures for Change Detection	49,902
150123	Sandia National Lab	Stochastic Study of Microparticle Adhesion due to Capillary Condensation	111,190
150124	Sandia National Lab	Thermal Desorption Coupled Gas Chromatography-Mass Spectrometry	117,228
150125	Sandia National Lab	Multidimensional Security Analysis	111,439
150226	Sandia National Lab	Lethality of Kinetic Energy Projectile (KEP) Warheads in Tactical Engagements	52,669
150252	Sandia National Lab	Cross-Domain Predictive Simulation Focusing on Energy Security	99,623
150255	Sandia National Lab	Dual-Etalon, Frequency-Comb Spectroscopy	59,762
150275	Sandia National Lab	Information Sharing with Information Assurance through Cryptographic Obfuscation	110,673
150276	Sandia National Lab	Measurement and Optimization of Infrastructure Resilience	155,376
150631	Sandia National Lab	Drying/Self-Assembly of Nanoparticle Suspensions	75,390
150632	Sandia National Lab	Enhanced Performance Assessment Tools for Carbon System Management	145,959
150635	Sandia National Lab	Investigation of the Condensing Supercritical CO2 Brayton Cycle	116,157
150636	Sandia National Lab	Preliminary Work Toward Developing Efficient Thermal Neutron Detection Using Gd Conversion Layers	101,625
150637	Sandia National Lab	Securing Application Software on Untrusted Hosts	91,321
150638	Sandia National Lab	Studies in High Rate Solidification	65,202
150639	Sandia National Lab	Structural Simulations of Nanomaterials Self-Assembled from Ionic Macrocycles	53,093
150640	Sandia National Lab	Tunnel Interface Response Modeling	50,552
150641	Sandia National Lab	Uncertainty Quantification of Cinematic Imaging for Development of Predictive Simulations of Turbulent Combustion	98,370
150772	Sandia National Lab	Advanced Analytics for NW Supply Chain Assessments	99,418
150774	Sandia National Lab	Polyoxometalate "Solutions" for Energy Storage	77,727
150776	Sandia National Lab	Scalable, Broadband, High-Efficiency, Active Planar-Patch Array Antenna for Small UAV-Based SAR Applications	84,903
150966	Sandia National Lab	An Adaptive Approach to Modeling Human Reasoning	66,784
150968	Sandia National Lab	Elucidating the Role of Interfacial Materials Properties in Microfluidic Packages	70,292
150969	Sandia National Lab	Hardware Based Authentication Approach	70,225
150970	Sandia National Lab	Southbound Borders Inspection	65,713
150971	Sandia National Lab	Uncertainty Quantification and Validation of Combined Hydrological and Macroeconomic Analyses	72,546
151170	Sandia National Lab	A Model-Based Approach for Detection and Avoidance of Subversion in System Development Tool Chains	66,738
151171	Sandia National Lab	A Polarization Independent Silicon Photonic Transceiver	56,142
151172	Sandia National Lab	An Extensible Framework for Specifying and Configuring Emulytics Testbeds	24,449
151173	Sandia National Lab	Conceptual Model Development for Energy Security Assessment of Liquid Fuel Disruptions	80,186
151174	Sandia National Lab	Fundamental Study of Metal/Oxide/Metal Memristor Physics and Device Optimization	61,936
151175	Sandia National Lab	Novel Detection Methods for Radiation-Induced Electron-Hole Pairs	66,573

Project	Site name	Project Desc	FY2010 Cost
151176	Sandia National Lab	Optimal, Automated Threat Detection and Localization in a Cluttered Radiation Background	94,094
151221	Sandia National Lab	The Effect of Chrome Adhesion Layer on Quartz Resonator Aging	12,820
151411	Sandia National Lab	Optimizing Infrastructure Investments in a Competitive Environment	62,721
	Total		152,634,320
	Administrative Cost		2,896,923
LDRD-2009-0008	Savannah River National Lab	Metal Hydride Based Thermoelectric Device	2,157
LDRD-2009-0010	Savannah River National Lab	Nanocrystalline Proton Conducting Ceramics for Hydrogen Separation Membrane Applications	8,123
LDRD-2009-0013	Savannah River National Lab	Evaluation of the long-term effectiveness of enhanced soil remediation with mixed amendments using geochemical parameters and numerical modeling	833
LDRD-2009-0046	Savannah River National Lab	Organo-Boron based Chemistries for Self-Assembly and Growth	515
LDRD-2009-0057	Savannah River National Lab	Metabolic Engineering of Cyanobacteria for Liquid Fuel Production	718
LDRD-2009-0060	Savannah River National Lab	Latex-embedded Cyanobacteria as a Portable Source of Hydrogen	42,571
LDRD-FP-2010-007	Savannah River National Lab	Evaluation of the long-term effectiveness of enhanced soil remediation with mixed amendments using geochemical parameters and numerical modeling under field conditions	136,420
LDRD-FP-2010-009	Savannah River National Lab	Structure Property Relations in Mixed Ionic/Electronic Conductive Ceramics for Energy Conversion	167,669
LDRD-FP-2010-012	Savannah River National Lab	Atmospheric Carbon Studies – Monitoring and Modeling for Source Attribution	140,544
LDRD-FP-2010-016	Savannah River National Lab	Proton Conductive Solid Polymer Electrolyte for Mg-Ni Rechargeable Batteries	154,007
LDRD-FP-2010-022	Savannah River National Lab	Bio-decomposition of Lignin for Production of Liquid Fuels	158,247
LDRD-FP-2010-030	Savannah River National Lab	Formation of Actinide Solid-Solution Oxides by Co-Precipitation of Actinide Oxalates	175,531
LDRD-FP-2010-031	Savannah River National Lab	Organo-Boron based Chemistries for Self-Assembly and Growth	138,074
LDRD-FP-2010-034	Savannah River National Lab	Self Assembly of Shape Selective Catalyst Impregnated Membranes: Toward Direct Methanol Fuel Cells (DMFC)	162,457
LDRD-FP-2010-037	Savannah River National Lab	Biodiesel Production From Algae Grown in South Carolina	250,771
LDRD-FP-2010-042	Savannah River National Lab	Thermodynamic evaluation of metallic waste forms for nuclear materials.	151,409
LDRD-FP-2010-055	Savannah River National Lab	Advanced Gas Sensors Using SERS-Activated Waveguides	135,137
LDRD-FP-2010-057	Savannah River National Lab	Fast Neutron Irradiation of Advanced Ceramics for Extreme Environments	182,570
LDRD-FP-2010-059	Savannah River National Lab	Nanoscale Boron-Based Neutron Detectors	149,410
LDRD-QH-2009-018	Savannah River National Lab	Mechanisms of Enhanced Growth in Radiation Fields	7,552
LDRD-QH-2009-034	Savannah River National Lab	Development of New Antimicrobial Agents	9,413
LDRD-QH-2009-039	Savannah River National Lab	Suitability of Lignin from Switchgrass for the Manufacture of Carbon Fibers	4,765
LDRD-QH-2009-041	Savannah River National Lab	Investigation of Ce/Eu/Tb activated heavy scintillating glasses containing high rare-earths for nuclear detection technology	508
LDRD-QH-2009-054	Savannah River National Lab	Fast Neutron Irradiation of Advanced Ceramics for Extreme Environments	1,174
LDRD-QH-2010-005	Savannah River National Lab	Video Image-based Radiation Detection and Measurement	61,776
LDRD-QH-2010-006	Savannah River National Lab	Nano-Composite Hybrid Lithium-Ion Battery	92,725
LDRD-QH-2010-009	Savannah River National Lab	Novel Neutron Detector Based on HDR	41,607

Project	Site name	Project Desc	FY2010 Cost
LDRD-QH-2010-035	Savannah River National Lab	Sorption of CO2 into Supported Ionogels for Advanced Carbon Sequestration Technologies	100,815
LDRD-SI-FY09/10-005	Savannah River National Lab	Nanosize Titanates for Optimized Performance in Separations Science, Innovative Medical Applications and Photochemistry	370,201
LDRD-SI-FY09/10-015	Savannah River National Lab	Development of High Capacity Portable Power Systems	434,253
LDRD-SI-FY09/10-023	Savannah River National Lab	Advanced Batteries for Electric Energy Storage	466,020
LDRD-SI-FY09/10-033	Savannah River National Lab	The Use of Statistical Downscaling to Project Regional Climate Changes as They Relate to Future Energy Production	308,009
	Total		4,055,981
	Administrative Cost		158,067
SR07005	Savannah River Plant	Stainless Steel Surface Treatments for Mass Spectroscopy Systems	16,857
SR07011	Savannah River Plant	Hydrogen Isotope Recovery Using a Proton Exchange Membrane (PEM) Electrolyzer	54,607
SR08001	Savannah River Plant	Betavoltaics for Tritium Detection	24,711
SR08004	Savannah River Plant	Development of High Voltage Divider/High Resolution Focusing System for Finnigan MAT 271	23,525
SR08006	Savannah River Plant	Accelerated Testing Methodology for Tritium Compatibility of Stainless Steel	190,682
SR09001	Savannah River Plant	Reusable nano-iron beds for tritium recovery-an alternative to magnesium beds	272,569
SR09020	Savannah River Plant	Low-voltage tritium detection based on gas nano-proportional counters	76,268
SR09026	Savannah River Plant	Performance of testing of mechanically alloyed zirconium-iron getter materials	142,583
SR09034	Savannah River Plant	Evaluate Pt-based catalysts for tritium oxidation reaction	120,255
SR09041	Savannah River Plant	Cavity enhanced absorbance gas cells for use in trace gas optical detection	155,997
	Total		1,078,054
	Administrative Costs	Paid by Plant overhead	
PD100108	Y-12 Plant	Microwire Embedded Sensor	332,755
PD100229	Y-12 Plant	Explosive Failure & Mitigation	180,526
PD100232	Y-12 Plant	Oxygen Analysis of Salt	44,643
PD100234	Y-12 Plant	Crimp Weld Process Improvement	82,120
PD100242	Y-12 Plant	Dimensional Metrology Develop	179,076
PD100262	Y-12 Plant	Moisture Monitor Evaluation	219,826
PD100264	Y-12 Plant	Ultra-Wide Band Study	150,662
PD100266	Y-12 Plant	Rapid Transfer Port Improvements	19,987
PD100268	Y-12 Plant	Develop NDE Raman Capabilities	197,409
PD100272	Y-12 Plant	Purge Requirements for IR Heating	252,684
PD100274	Y-12 Plant	Electroplating of U-Mo Foils	194,527
PD100277	Y-12 Plant	Determine Thermodynamic Prop	129,279
PD100279	Y-12 Plant	Digital Radiography Image Proc	29,250
PD100280	Y-12 Plant	Dual-YZ Controller Replacement	221,981
PD100281	Y-12 Plant	Real-Time Analysis Of U Welding	99,660
PD100289	Y-12 Plant	Nuclear Detection/Sensor Testing	1,812,783
PD100290	Y-12 Plant	Advanced Digital Radiography	252,727
PD100294	Y-12 Plant	Process Measurements	179,196

Project	Site name	Project Desc	FY2010 Cost
PD100298	Y-12 Plant	Deform/Microstructure of As-Cast DU	176,237
PD100303	Y-12 Plant	CMM Research Equipment	178,210
PD100307	Y-12 Plant	NDE Assay U Oxides In Columns	300,281
PD100312	Y-12 Plant	Heavy Water Production	173,330
PD100313	Y-12 Plant	U Separation Technologies	109,961
PD100314	Y-12 Plant	Denitrator Improvements	75,468
PD100315	Y-12 Plant	Mixing Tank Evaluation	347,890
PD100319	Y-12 Plant	SDOR Dissolution System Prototype	175,643
PD100323	Y-12 Plant	Adv Disassembly for Recov/Reuse	254,871
PD100324	Y-12 Plant	Precision Hydroforming	179,314
PD100326	Y-12 Plant	Personnel Account. Infrastructure	141,079
PD100327	Y-12 Plant	Adv Technology Solutions Devel	8,715
PD100335	Y-12 Plant	Tin Whisker Mitigation	75,690
PD100340	Y-12 Plant	Immobilization Methods	137,396
PD100482	Y-12 Plant	UNH Calcination Optimization	170,053
PD100483	Y-12 Plant	Crucible Opt for Therm Conv	63,730
PD100503	Y-12 Plant	REX System Operating Parameters	65,412
PD100642	Y-12 Plant	CFD-Driven Agent-Based Modeling	22,993
Y1205093	Y-12 Plant	Special Casting Requirements	922,313
Y1206007	Y-12 Plant	Monitor Tanks and Trays for NMC&A	155,640
Y1207002	Y-12 Plant	Laser Repair of Casting Defects	63,054
Y1207118	Y-12 Plant	Thermal Conversion of Uranium Oxide	51,216
Y1208003	Y-12 Plant	Surface Particulate Cleaning	152,887
Y1208026	Y-12 Plant	Non-contact Inspection Collaboration with Savannah River Site	138,084
Y1208073	Y-12 Plant	Machining Science	214,584
Y1208077	Y-12 Plant	Improved Dissolution Systems	195,780
Y1208081	Y-12 Plant	Electrorefining of U Alloy	456,590
Y1208087	Y-12 Plant	Casting Crucible Improvement	149,600
Y1208107	Y-12 Plant	Laser and Machine Marking	47,376
Y1208125	Y-12 Plant	ThermoMechanical Analysis	189,758
Y1208144	Y-12 Plant	Moisture Free Containers	235,233
Y1208146	Y-12 Plant	Hydrogen in Metals	181,467
Y1208152	Y-12 Plant	Agile Machining Technologies	722,852
Y1208154	Y-12 Plant	Electrochemical Processing	65,118
Y1208156	Y-12 Plant	Joining Technology Improvements	24,599
Y1208157	Y-12 Plant	Alternative Forming Methods	479,133
Y1208162	Y-12 Plant	Advanced Structural Dynamics	208,260
Y1208166	Y-12 Plant	Wall Design Evaluation	172,427
Y1209002	Y-12 Plant	Solid-state NMR Techniques	188,130
Y1209005	Y-12 Plant	Polymer Barrier Properties	170,772
Y1209006	Y-12 Plant	Neutron Diffraction Studies of U	296,933
Y1209007	Y-12 Plant	Boron Phosphide Neutron Detector	228,911
Y1209008	Y-12 Plant	ESEM Materials Characterization	151,040
Y1209015	Y-12 Plant	Physical Properties of U - CSM	132,311

Project	Site name	Project Desc	FY2010 Cost
Y1209020	Y-12 Plant	Models for MeV X-Ray Facility	80,179
Y1209026	Y-12 Plant	Lithium Manufacturing Methods	956,914
Y1209028	Y-12 Plant	Carbon Impurity Analysis in U	166,110
Y1209031	Y-12 Plant	Pilot Access Authorization System	36,246
Y1209032	Y-12 Plant	NDE Flaw Detection in Castings	242,717
Y1209054	Y-12 Plant	Additional Applications for Robotic Welding	14,207
Y1209061	Y-12 Plant	Fracture Mechanics in Cast U	162,261
Y1209075	Y-12 Plant	HRICPMS	108,645
Y1209076	Y-12 Plant	Pre/Post Cast U Grain Refining	323,516
Y1209090	Y-12 Plant	Develop Press Forming Process	71,776
Y1209093	Y-12 Plant	Multi-Scale Material Modeling	11,127
Y1209124	Y-12 Plant	Automated Shipping and Receiving	221,269
Y1209130	Y-12 Plant	Special Material Capability	119,416
Y1209132	Y-12 Plant	Uranium Mass Flow Meters	448,311
Y1209133	Y-12 Plant	Diskless / Wireless Technologies	305,543
Y1209134	Y-12 Plant	Chip and Part Cleaning	370,950
Y1209135	Y-12 Plant	Special Material Post-Purification Study	663,355
Y1209147	Y-12 Plant	Wireless Sprinkler Monitoring	71,832
	Total		17,603,806
	Administrative Cost		1,104,649

Department of Energy
Washington, DC 20585

February 1, 2011

The Honorable Fred Upton
Chairman, Committee on Energy
and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

As requested in the Fiscal Year (FY) 2001 Energy and Water Development Appropriations Conference Report (H.R.106-988), enclosed is the Department of Energy's (DOE) FY 2010 Report on Laboratory Directed Research and Development (LDRD). This report provides a detailed project history of LDRD activities, as well as information on the funding levels and the impact and importance of the program in advancing the diverse missions of the Federal Government.

In FY 2010, DOE National Laboratories devoted approximately $541 million to LDRD in 1,662 projects. The Report also includes information on DOE's Plant Directed Research, Development and Demonstration, and the Site Directed Research, Development and Demonstration programs.

Departmental representatives are available to discuss any questions you may have regarding the information included in this report. If you have questions, please contact Mr. Christopher Hanson, Office of External Coordination, at (202) 586-3944; or Ms. Kathy Peery, Office of Congressional and Intergovernmental Affairs, at (202) 586-2794.

Sincerely,

Steve Isakowitz
Chief Financial Officer

Enclosure

cc: The Honorable Henry A. Waxman
Ranking Member

Department of Energy

Washington, DC 20585

February 1, 2011

The Honorable Jeff Bingaman
Chairman, Committee on Energy
and Natural Resources
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

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Sincerely,

Steve Isakowitz
Chief Financial Officer

Enclosure

cc: The Honorable Lisa Murkowski
Ranking Member

Department of Energy

Washington, DC 20585

February 1, 2011

The Honorable Ralph M. Hall
Chairman, Committee on Science
And Technology
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

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Sincerely,

Steve Isakowitz
Chief Financial Officer

Enclosure

cc: The Honorable Eddie Bernice Johnson
Ranking Member

Department of Energy
Washington, DC 20585

February 1, 2011

The Honorable Howard P. McKeon
Chairman, Committee on Armed Services
U.S. House of Representatives
Washington, DC 20510

Dear Mr. Chairman:

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Sincerely,

Steve Isakowitz
Chief Financial Officer

Enclosure

cc: The Honorable Adam Smith
Ranking Member

Department of Energy

Washington, DC 20585

February 1, 2011

The Honorable Harold Rogers
Chairman, Committee on Appropriations
U.S. House of Representatives
Washington, DC 20510

Dear Mr. Chairman:

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Sincerely,

Steve Isakowitz
Chief Financial Officer

Enclosure

cc: The Honorable Norm Dicks
Ranking Member

Department of Energy
Washington, DC 20585

February 1, 2011

The Honorable Daniel K. Inouye
Chairman, Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

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Sincerely,

Steve Isakowitz
Chief Financial Officer

Enclosure

cc: The Honorable Thad Cochran
Ranking Member